

PMP Quick Reference

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Publications I Recommend

A Guide to the Project Management Body of Knowledge (PMBOK Guide).

Project Management Institute. 1-880410-25-7. Project Management Institute.

Hot Topics: Audio Flashcards For Passing the PMP and CAPM exams.

Rita Mulcahy, PMP. 0-9711647-7-0. RMC Publishing.

PMP Project Management Professional Study Guide.

Kim Heldman, PMP. 0-7821-4106-4. Sybex.

Project Management Professional Certification Handbook.

Project Management Institute. N/A. Project Management Institute.

About this Document

I created this document for use with my PocketPC. It summarizes the key topics from all the various other documents that I have created. I deploy it as a PDF on my web site because it is simple to upload, simple to access and easy to download. On my PocketPC, however, I find that it works best as an Excel file. If you would like the Excel version of this file or the original Word or Excel versions of my other notes, please send me an email.

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Processes Grouped by Domain and Knowledge Area

Knowledge Areas	Domains					
	Process Groups					Professional Responsibility
	Initiating	Planning	Executing	Controlling	Closing	
Integration		Project Plan Development	Project Plan Execution	Integrated Change Control		yes
Scope	Initiation	Scope Planning Scope Definition		Scope Verification Scope Change Control		yes
Time		Activity Definition Activity Sequencing Activity Duration Estimating Schedule Development		Schedule Control		yes
Cost		Resource Planning Cost Estimating Cost Budgeting		Cost Control		yes
Quality		Quality Planning	Quality Assurance	Quality Control		yes
HR		Organizational Planning Staff Acquisition	Team Development			yes
Communication		Communications Planning	Information Distribution	Performance Reporting	Administrative Closure	yes
Risk		Risk Management Planning Risk Identification Qualitative Risk Analysis Quantitative Risk Analysis Risk Response Planning		Risk Monitoring & Control		yes
Procurement		Procurement Planning Solicitation Planning	Solicitation Source Selection Contract Administration		Contract Closeout	yes

Reference: PMBOK 38 and Roles.

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Processes with Inputs, Tools/Techniques and Outputs		
INTEGRATION / PLANNING Project Plan Development	INTEGRATION / EXECUTION Project Plan Execution	INTEGRATION / CONTROLLING Integrated Change Control
Inputs Assumptions Constraints Historical Information Organizational Policies Other Planning Outputs	Inputs Corrective Action Organizational Policies Preventative Action Project Plan Supporting Detail	Inputs Change Requests Performance Reports Project Plan
Tools & Techniques Earned value management (EVM) Project management information system Project planning methodology Stakeholder skills and knowledge	Tools & Techniques General management skills Organizational procedures Product skills and knowledge Project management information system	Tools & Techniques Additional planning Change control system Configuration management Performance measurement Project management information system
Outputs Project Plan Supporting Detail	Outputs Status review meetings Work authorization system Outputs Change Requests Work Results	Outputs Corrective Action Lessons Learned Project Plan Updates

SCOPE / INITIATION	SCOPE / PLANNING	SCOPE / PLANNING	SCOPE / CONTROLLING	SCOPE / CONTROLLING
Initiation	Scope Planning	Scope Definition	Scope Verification	Scope Change Control
Inputs Historical Information Product Description Project Selection Criteria Strategic Plan	Inputs Assumptions Constraints Product Description Project Charter	Inputs Assumptions Constraints Historical Information Other Planning Outputs Scope Statement	Inputs Product Documentation Project Plan Scope Statement Work Breakdown Structure Work Results	Inputs Change Requests Performance Reports Scope Management Plan Work Breakdown Structure
Tools & Techniques Expert judgment Project selection methods	Tools & Techniques Alternatives identification Benefit / cost analysis Expert judgment Product analysis	Tools & Techniques Decomposition Work breakdown structure templates	Tools & Techniques Inspection	Tools & Techniques Additional planning Performance measurement Scope change control system
Outputs Assumptions Constraints Project Charter Project Manager identified / assigned	Outputs Scope Management Plan Scope Statement Supporting Detail	Outputs Scope Statement Updates Work Breakdown Structure	Outputs Formal Acceptance	Outputs Adjusted Baseline Corrective Action Lessons Learned Scope Changes

TIME / PLANNING	TIME / PLANNING	TIME / PLANNING	TIME / PLANNING	TIME / CONTROLLING
Activity Definition	Activity Sequencing	Activity Duration Estimating	Schedule Development	Schedule Control
Inputs Assumptions Constraints Expert Judgment Historical Information Scope Statement Work Breakdown Structure	Inputs Activity List Discretionary Dependencies External Dependencies Mandatory Dependencies Milestones Product Description	Inputs Activity List Assumptions Constraints Historical Information Identified Risks Resource Capabilities Resource Requirements	Inputs Activity Attributes Activity Duration Estimates Assumptions Calendars Constraints Lead and Lag Times Project Network Diagrams Resource Pool Description Resource Requirements Risk Management Plan	Inputs Change Requests Performance Reports Project Schedule Schedule Management Plan
Tools & Techniques Decomposition Templates	Tools & Techniques Arrow diagramming method (ADM) Conditional diagramming methods Network templates Precedence diagramming method (PDM)	Tools & Techniques Analogous estimating Expert judgment Quantitatively based durations Reserve time (contingency)	Tools & Techniques Coding structure Duration compression Mathematical analysis Project management software Resource leveling heuristics Simulation	Tools & Techniques Additional planning Performance measurement Project management software Schedule change control system Variance analysis
Outputs Activity List Supporting Detail Work Breakdown Structure Updates	Outputs Activity List Updates Project Network Diagrams	Outputs Activity Duration Estimates Activity List Updates Basis of Estimates	Outputs Project Schedule Resource Requirement Updates Schedule Management Plan Supporting Detail	Outputs Corrective Action Lessons Learned Schedule Updates

Processes with Inputs, Tools/Techniques and Outputs

<p>COST / PLANNING Resource Planning Inputs Activity Duration Estimates Historical Information Organizational Policies Resource Pool Description Scope Statement Work Breakdown Structure Tools & Techniques Alternatives identification Expert judgment Project management software Outputs Resource Requirements</p>	<p>COST / PLANNING Cost Estimating Inputs Activity Duration Estimates Chart of Accounts Estimating Publications Historical Information Resource Rates Resource Requirements Risks Work Breakdown Structure Tools & Techniques Analogous estimating Bottom-up estimating Computerized tools Other cost estimating methods Parametric estimating Outputs Cost Estimates Cost Management Plan Supporting Detail</p>	<p>COST / PLANNING Cost Budgeting Inputs Cost Estimates Project Schedule Risk Management Plan Work Breakdown Structure Tools & Techniques Cost budgeting tools and techniques Outputs Cost Baseline</p>	<p>COST / CONTROLLING Cost Control Inputs Change Requests Cost Baseline Cost Management Plan Performance Reports Tools & Techniques Additional planning Computerized tools Cost change control system Earned value management (EVM) Performance measurement Outputs Budget Updates Corrective Action Estimate at Completion Lessons Learned Project Closeout Revised Cost Estimates</p>
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<p>QUALITY / PLANNING Quality Planning Inputs Other Process Outputs Product Description Quality Policy Scope Statement Standards and Regulation Tools & Techniques Benchmarking Benefit / cost analysis Cost of quality Design of experiments Flow-charting Outputs Checklists Inputs to Other Processes Operational Definitions Quality Management Plan</p>	<p>QUALITY / EXECUTION Quality Assurance Inputs Operational Definitions Quality Management Plan Results of Quality Control Measurements Tools & Techniques Quality audits Quality planning tools and techniques Outputs Quality Improvement</p>	<p>QUALITY / CONTROLLING Quality Control Inputs Checklists Operational Definitions Quality Management Plan Work Results Tools & Techniques Control charts Flow-charting Inspection Pareto diagrams Statistical sampling Trend analysis Outputs Acceptance Decisions Completed Checklists Process Adjustments Quality Improvement Rework</p>
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<p>HUMAN RESOURCES / PLANNING Organizational Planning Inputs Constraints Project Interfaces Staffing Requirements Tools & Techniques Human resources practices Organizational theory Stakeholder analysis Templates Outputs Organization Chart Roles and Responsibility Assignments Staffing Management Plan Supporting Detail</p>	<p>HUMAN RESOURCES / PLANNING Staff Acquisition Inputs Recruitment Practices Staffing Management Plan Staffing Pool Description Tools & Techniques Negotiations Preassignment Procurement Outputs Project Staff Assigned Project Team Directory</p>	<p>HUMAN RESOURCES / EXECUTION Team Development Inputs External Feedback Performance Reports Project Plan Project Staff Staffing Management Plan Tools & Techniques Collocation General management skills Reward and recognition systems Team-building activities Training Outputs Input to Performance Appraisals Performance Improvements</p>
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Processes with Inputs, Tools/Techniques and Outputs

COMMUNICATIONS / PLANNING Communications Planning	COMMUNICATIONS / EXECUTING Information Distribution	COMMUNICATIONS / CONTROLLING Performance Reporting	COMMUNICATIONS / CLOSING Administrative Closure
Inputs Assumptions Communication Requirements Communication Technologies Constraints	Inputs Communications Management Plan Project Plan Work Results	Inputs Other Project Records Project Plan Work Results	Inputs Other Project Records Performance Measurement Documentation Product Documentation
Tools & Techniques Stakeholder analysis	Tools & Techniques Communications skills Information distribution methods Information retrieval systems	Tools & Techniques Earned value management (EVM) Information distribution tools and techniques	Tools & Techniques Performance reporting tools and techniques Project presentations Project reports
Outputs Communications Management Plan	Outputs Project Presentations Project Records Project Reports	Outputs Trend analysis Variance analysis Outputs Change Requests Performance Reports	Outputs Lessons Learned Project Archives Project Closure

RISK / PLANNING Risk Management Planning	RISK / PLANNING Risk Identification	RISK / PLANNING Qualitative Risk Analysis	RISK / PLANNING Quantitative Risk Analysis	RISK / PLANNING Risk Response Planning	RISK / CONTROLLING Risk Monitoring and Control
Inputs Defined Roles and Responsibilities Organization's Risk Management Policies Project Charter Stakeholder Risk Tolerances Template for Organization's Risk Management Plan Work Breakdown Structure	Inputs Historical Information Project Planning Outputs Risk Categories Risk Management Plan	Inputs Assumptions Data Precision Identified Risks Project Status Project Type Risk Management Plan Scale of Probability and Impact	Inputs Expert Judgment Historical Information Identified Risks List of Prioritized Risks List of Risks for Additional Analysis Other Planning Outputs Risk Management Plan	Inputs Common Risk Causes List of Potential Responses List of Prioritized Risks Prioritized List of Quantified Risks Probabilistic Analysis of the Project Probability of Achieving the Cost and Time Objectives Risk Management Plan Risk Owners Risk Ranking for the Project Risk Thresholds Trend in Qualitative Risk Analysis Results	Inputs Additional Risk Identification and Analysis Project Communication Risk Management Plan Risk Response Plan Scope Changes
Tools & Techniques Planning meetings	Tools & Techniques Checklists Diagramming techniques Documentation reviews Information gathering techniques	Tools & Techniques Data precision ranking Probability / Impact risk rating matrix Project assumptions testing Risk probability and impact	Tools & Techniques Decision tree analysis Interviewing Sensitivity analysis Simulation	Tools & Techniques Acceptance Avoidance Mitigation Transference	Tools & Techniques Additional risk response planning Earned value management (EVM) Periodic project risk reviews Project risk response audits Technical performance measurement
Outputs Risk Management Plan	Outputs Inputs to Other Processes Risks Triggers	Outputs List of Prioritized Risks List of Risks for Additional Analysis Risk Ranking for the Project Trend in Qualitative Risk Analysis Results	Outputs Prioritized List of Quantified Risks Probabilistic Analysis of the Project Probability of Achieving the Cost and Time Objectives Trend in Quantitative Risk Analysis Results	Outputs Contingency Reserve Amount Needed Contractual Agreements Input to a Revised Project Plan Inputs to Other Processes Residual Risks Risk Response Plan Secondary Risks	Outputs Change Requests Corrective Action Risk Database Updates to risk identification checklists Updates to the Risk Response Plan Workaround Plans

PROCUREMENT / PLANNING Procurement Planning	PROCUREMENT / PLANNING Solicitation Planning	PROCUREMENT / EXECUTION Solicitation	PROCUREMENT / EXECUTION Source Selection	PROCUREMENT / EXECUTION Contract Administration	PROCUREMENT / CLOSING Contract Closeout
Inputs Assumptions Constraints Market Conditions Other Planning Outputs Procurement Resources Product Description Scope Statement	Inputs Other Planning Outputs Procurement Management Plan Statements of Work	Inputs Procurement Documents Qualified Sellers List	Inputs Evaluation Criteria Organizational Policies Proposals	Inputs Change Requests Contract Seller Invoices Work Results	Inputs Contract Documentation
Tools & Techniques Contract type selection Expert judgment Make-or-buy analysis	Tools & Techniques Expert Judgment Standard forms	Tools & Techniques Advertising Bidder conferences	Tools & Techniques Contract negotiation Independent estimates Screening system Weighting system	Tools & Techniques Contract change control system Payment system Performance reporting	Tools & Techniques Procurement audits
Outputs Procurement Management Plan Statements of Work	Outputs Evaluation Criteria Procurement Documents Statement of Work Updates	Outputs Proposals	Outputs Contract	Outputs Contract Changes Correspondence Payment Requests	Outputs Contract File Formal Acceptance

CPM Quick Reference

Pick ONE Style and stay with it

For Me, the easiest convention is:

Starting Point: Zero

Addition: Early Finish = Early Start + Duration

Increment: Early Start = Early Finish of LATEST predecessor

Forward Pass

Read the problem carefully

Draw the diagram with your notation

Add the values given by the Question

Work left to right on tasks with 1 predecessor

When tasks Join, Latest EF wins

Backward Pass

Convention going back matches forward

Start with the End Node

Work right to left

Late Finish = Late Start of EARLIEST dependent

Late Start = Late Finish - Duration

Critical Path

Project must have a single start and single end

Calculate the Floats

Float = Late Finish - Early Finish

Critical Path is the set of Nodes with 0 Float

Write down your answer

Answer the Question

Read the problem carefully -- again

Compare your answer to the list of answers

Then answer the question

WBSID	
Duration	Float
Early Start	Early Finish
Late Start	Late Finish

Crashing

Find the Critical Path

Only crash nodes on the Critical Path

Work from highest Benefit/Cost order

Crash one node at a time

Re-Evaluate the Critical Path after every change

Stop when the desired schedule reduction is achieved

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EV Quick Reference

Earned Value Vocabulary

AC	Actual Cost (to date)
BAC	Budget At Completion (planned budget)
CPI	Cost Performance Index ($CPI = EV / AC$)
CV	Cost Variance ($CV = EV - AC$)
EAC	Estimate At Completion (Formulas are listed below)
ETC	Estimate To Complete ($ETC = EAC - AC$)
EV	Earned Value ($EV = PV * \%Complete$)
PV	Planned Value: BAC for this task or CAP
SPI	Schedule Performance Index ($SPI = EV / PV$)
SV	Schedule Variance ($SV = EV - PV$)
VAC	Variance At Completion ($VAC = BAC - EAC$)

Key Earned Value Formulas

Cost Performance Index	$CPI = EV / AC$
Cost Variance	$CV = EV - AC$
Earned Value (for a task)	$EV = PV * \%Complete$
Estimate To Complete	$ETC = EAC - AC$
Schedule Performance Index	$SPI = EV / PV$
Schedule Variance	$SV = EV - PV$
Variance At Completion	$VAC = BAC - EAC$

Estimate At Completion Equations

When the project is re-estimated	$EAC = AC + ETC$
When variances are not typical	$EAC = AC + (BAC - EV)$
When variances should stay the same	$EAC = AC + ((BAC - EV) / CPI)$
Projection based upon variances to date	$EAC = BAC / CPI$

Other Useful Vocabulary

Estimated Time Remaining	$(Original\ Estimate\ Duration / SPI) - Time\ Elapsed\ so\ far$
Estimated Time to Complete (total)	$Original\ Estimate\ Duration / SPI$
Percent Complete	Either the percent completion of a task or of a CAP or of the project (see below)
Percent Spent	$\%Spent = AC / BAC$

Percent Completion

Project %Complete	This can be calculated using task durations or by using Earned Value.
For a task	$EV = PV * \%Complete$ $BAC = \text{Sum of all the PV values}$ Hence, %Complete for the Project = $(\text{Sum of the EV values}) / BAC$

Derivation of EAC equations

Derivation of EAC equations	$EAC = AC + (BAC - EV) = AC + ((BAC - EV) / CPI)$, when $CPI = 1$ $EAC = AC + ((BAC - EV) / CPI) = AC + BAC / CPI - EV / CPI = BAC / CPI$ Hence, $EAC = AC + ((BAC - EV) / CPI)$ is the basis for all of these special cases.
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Vocabulary that is slowing being phased out

ACWP	Actual Cost of Work Performed (replaced by AC)
BCWP	Budgeted Cost of Work Performed (replaced by EV)
BCWS	Budgeted Cost of Work Scheduled (replaced by PV)

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Decision Tree Quick Reference

List the alternatives

Assign probabilities

Draw the tree

Assign probable benefits and costs

Calculate the expected value

Net Revenue = (Benefit – Cost)

Expected Value = (Net Revenue) * (Probability)

Expected Value at a junction is the sum of the branches

Work every branch and junction from right to left

Solve

Either for the whole

Or to identify the best branches

Components of the Project Plan

PMBOK Description from page 45	Name of the Output	Process that Creates this Output
Project Charter	Project Charter	Scope Initiation
A description of the project management approach or strategy (a summary of the individual management plans from the other knowledge areas).	Nameless documents	Project Plan Development
Scope statement, which includes the project objectives and the project deliverables.	Scope Statement	Scope Planning
WBS to the level at which control will be exercised, as a baseline scope document.	Work Breakdown Structure	Scope Definition
Cost estimates, scheduled start and finish dates (schedule), and responsibility assignments for each deliverable within the WBS to the level at which control will be exercised.	Cost Estimate	Cost Estimating
	Project Schedule	Schedule Development
	Roles and Responsibility Assignments	Organizational Planning
Performance measurement baselines for technical scope, schedule, and cost — i.e., the schedule baseline (project schedule) and the cost baseline (timephased project budget).	Cost Baseline	Cost Budgeting
Major milestones and target dates for each.	Milestones ?	Input to Activity Sequencing ?
Key or required staff and their expected cost and/or effort.	Resource Requirements	Resource Planning
Risk management plan, including: key risks, including constraints and assumptions, and planned responses and contingencies (where appropriate) for each.	Risk Management Plan	Risk Management Planning
Subsidiary management plans, namely:	Scope management plan	Scope Planning
	Schedule management plan	Schedule Development
	Cost management plan	Cost Estimating
	Quality management plan	Quality Planning
	Staffing management plan	Organizational Planning
	Communications management plan	Communications Planning
	Risk response plan	Risk Response Planning
	Procurement management plan	Procurement Planning
Open issues and pending decisions.	Project Reports ?	Information Distribution ?
Other project planning outputs should be included in the formal plan, based upon the needs of the individual project. For example, the project plan for a large project will generally include a project organization chart.	Organization Chart	Organizational Planning

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Outputs in Alphabetical Order	Output Process	Output KA / PG	Input Process	Input KA / PG
Outputs described in the Project Management International PMBOK 2000				
Acceptance Decisions	Quality Control	Quality / Controlling		
Activity Attributes			Schedule Development	Time / Planning
Activity Duration Estimates	Activity Duration Estimating	Time / Planning	Cost Estimating	Cost / Planning
Activity Duration Estimates	Activity Duration Estimating	Time / Planning	Resource Planning	Cost / Planning
Activity Duration Estimates	Activity Duration Estimating	Time / Planning	Schedule Development	Time / Planning
Activity List	Activity Definition	Time / Planning	Activity Duration Estimating	Time / Planning
Activity List	Activity Definition	Time / Planning	Activity Sequencing	Time / Planning
Activity List Updates	Activity Duration Estimating	Time / Planning		
Activity List Updates	Activity Sequencing	Time / Planning		
Additional Risk Identification and Analysis			Risk Monitoring and Control	Risk / Controlling
Adjusted Baseline	Scope Change Control	Scope / Controlling		
Assumptions	Initiation	Scope / Initiation	Activity Definition	Time / Planning
Assumptions	Initiation	Scope / Initiation	Activity Duration Estimating	Time / Planning
Assumptions	Initiation	Scope / Initiation	Communications Planning	Communications / Planning
Assumptions	Initiation	Scope / Initiation	Procurement Planning	Procurement / Planning
Assumptions	Initiation	Scope / Initiation	Project Plan Development	Integration / Planning
Assumptions	Initiation	Scope / Initiation	Qualitative Risk Analysis	Risk / Planning
Assumptions	Initiation	Scope / Initiation	Schedule Development	Time / Planning
Assumptions	Initiation	Scope / Initiation	Scope Definition	Scope / Planning
Assumptions	Initiation	Scope / Initiation	Scope Planning	Scope / Planning
Basis of Estimates	Activity Duration Estimating	Time / Planning		
Budget Updates	Cost Control	Cost / Controlling		
Calendars			Schedule Development	Time / Planning
Change Requests	Performance Reporting	Communications / Controlling	Contract Administration	Procurement / Execution
Change Requests	Performance Reporting	Communications / Controlling	Cost Control	Cost / Controlling
Change Requests	Performance Reporting	Communications / Controlling	Integrated Change Control	Integration / Controlling
Change Requests	Performance Reporting	Communications / Controlling	Schedule Control	Time / Controlling
Change Requests	Performance Reporting	Communications / Controlling	Scope Change Control	Scope / Controlling
Change Requests	Project Plan Execution	Integration / Execution	Contract Administration	Procurement / Execution
Change Requests	Project Plan Execution	Integration / Execution	Cost Control	Cost / Controlling
Change Requests	Project Plan Execution	Integration / Execution	Integrated Change Control	Integration / Controlling
Change Requests	Project Plan Execution	Integration / Execution	Schedule Control	Time / Controlling
Change Requests	Project Plan Execution	Integration / Execution	Scope Change Control	Scope / Controlling
Change Requests	Risk Monitoring and Control	Risk / Controlling	Contract Administration	Procurement / Execution
Change Requests	Risk Monitoring and Control	Risk / Controlling	Cost Control	Cost / Controlling
Change Requests	Risk Monitoring and Control	Risk / Controlling	Integrated Change Control	Integration / Controlling
Change Requests	Risk Monitoring and Control	Risk / Controlling	Schedule Control	Time / Controlling
Change Requests	Risk Monitoring and Control	Risk / Controlling	Scope Change Control	Scope / Controlling
Chart of Accounts			Cost Estimating	Cost / Planning
Checklists	Quality Planning	Quality / Planning	Quality Control	Quality / Controlling
Common Risk Causes			Risk Response Planning	Risk / Planning
Communication Requirements			Communications Planning	Communications / Planning
Communication Technologies			Communications Planning	Communications / Planning
Communications Management Plan	Communications Planning	Communications / Planning	Information Distribution	Communications / Execution
Completed Checklists	Quality Control	Quality / Controlling		
Constraints	Initiation	Scope / Initiation	Activity Definition	Time / Planning
Constraints	Initiation	Scope / Initiation	Activity Duration Estimating	Time / Planning
Constraints	Initiation	Scope / Initiation	Communications Planning	Communications / Planning
Constraints	Initiation	Scope / Initiation	Organizational Planning	Human Resources / Planning
Constraints	Initiation	Scope / Initiation	Procurement Planning	Procurement / Planning
Constraints	Initiation	Scope / Initiation	Project Plan Development	Integration / Planning
Constraints	Initiation	Scope / Initiation	Schedule Development	Time / Planning
Constraints	Initiation	Scope / Initiation	Scope Definition	Scope / Planning
Constraints	Initiation	Scope / Initiation	Scope Planning	Scope / Planning
Contingency Reserve Amount Needed	Risk Response Planning	Risk / Planning		
Contract	Source Selection	Procurement / Execution	Contract Administration	Procurement / Execution
Contract Changes	Contract Administration	Procurement / Execution		
Contract Documentation			Contract Closeout	Procurement / Closing
Contract File	Contract Closeout	Procurement / Closing		
Contractual Agreements	Risk Response Planning	Risk / Planning		
Corrective Action	Cost Control	Cost / Controlling	Project Plan Execution	Integration / Execution
Corrective Action	Integrated Change Control	Integration / Controlling	Project Plan Execution	Integration / Execution
Corrective Action	Risk Monitoring and Control	Risk / Controlling	Project Plan Execution	Integration / Execution
Corrective Action	Schedule Control	Time / Controlling	Project Plan Execution	Integration / Execution
Corrective Action	Scope Change Control	Scope / Controlling	Project Plan Execution	Integration / Execution
Correspondence	Contract Administration	Procurement / Execution		
Cost Baseline	Cost Budgeting	Cost / Planning	Cost Control	Cost / Controlling
Cost Estimates	Cost Estimating	Cost / Planning	Cost Budgeting	Cost / Planning
Cost Management Plan	Cost Estimating	Cost / Planning	Cost Control	Cost / Controlling

Outputs in Alphabetical Order	Output Process	Output KA / PG	Input Process	Input KA / PG
Data Precision			Qualitative Risk Analysis	Risk / Planning
Defined Roles and Responsibilities			Risk Management Planning	Risk / Planning
Discretionary Dependencies			Activity Sequencing	Time / Planning
Estimate at Completion	Cost Control	Cost / Controlling		
Estimating Publications			Cost Estimating	Cost / Planning
Evaluation Criteria	Solicitation Planning	Procurement / Planning	Source Selection	Procurement / Execution
Expert Judgment			Activity Definition	Time / Planning
Expert Judgment			Quantitative Risk Analysis	Risk / Planning
External Dependencies			Activity Sequencing	Time / Planning
External Feedback			Team Development	Human Resources / Execution
Formal Acceptance	Contract Closeout	Procurement / Closing		
Formal Acceptance	Scope Verification	Scope / Controlling		
Historical Information			Activity Definition	Time / Planning
Historical Information			Activity Duration Estimating	Time / Planning
Historical Information			Cost Estimating	Cost / Planning
Historical Information			Initiation	Scope / Initiation
Historical Information			Project Plan Development	Integration / Planning
Historical Information			Quantitative Risk Analysis	Risk / Planning
Historical Information			Resource Planning	Cost / Planning
Historical Information			Risk Identification	Risk / Planning
Historical Information			Scope Definition	Scope / Planning
Identified Risks	Risk Identification	Risk / Planning	Activity Duration Estimating	Time / Planning
Identified Risks	Risk Identification	Risk / Planning	Qualitative Risk Analysis	Risk / Planning
Identified Risks	Risk Identification	Risk / Planning	Quantitative Risk Analysis	Risk / Planning
Input to a Revised Project Plan	Risk Response Planning	Risk / Planning		
Input to Performance Appraisals	Team Development	Human Resources / Execution		
Inputs to Other Processes	Quality Planning	Quality / Planning		
Inputs to Other Processes	Risk Identification	Risk / Planning		
Inputs to Other Processes	Risk Response Planning	Risk / Planning		
Lead and Lag Times			Schedule Development	Time / Planning
Lessons Learned	Administrative Closure	Communications / Closing		
Lessons Learned	Cost Control	Cost / Controlling		
Lessons Learned	Integrated Change Control	Integration / Controlling		
Lessons Learned	Schedule Control	Time / Controlling		
Lessons Learned	Scope Change Control	Scope / Controlling		
List of Potential Responses			Risk Response Planning	Risk / Planning
List of Prioritized Risks	Qualitative Risk Analysis	Risk / Planning	Quantitative Risk Analysis	Risk / Planning
List of Prioritized Risks	Qualitative Risk Analysis	Risk / Planning	Risk Response Planning	Risk / Planning
List of Risks for Additional Analysis	Qualitative Risk Analysis	Risk / Planning	Quantitative Risk Analysis	Risk / Planning
Mandatory Dependencies			Activity Sequencing	Time / Planning
Market Conditions			Procurement Planning	Procurement / Planning
Milestones			Activity Sequencing	Time / Planning
Operational Definitions	Quality Planning	Quality / Planning	Quality Assurance	Quality / Executing
Operational Definitions	Quality Planning	Quality / Planning	Quality Control	Quality / Controlling
Organization Chart	Organizational Planning	Human Resources / Planning		
Organizational Policies			Project Plan Development	Integration / Planning
Organizational Policies			Project Plan Execution	Integration / Execution
Organizational Policies			Resource Planning	Cost / Planning
Organizational Policies			Source Selection	Procurement / Execution
Organization's Risk Management Policies			Risk Management Planning	Risk / Planning
Other Planning Outputs			Procurement Planning	Procurement / Planning
Other Planning Outputs			Project Plan Development	Integration / Planning
Other Planning Outputs			Quantitative Risk Analysis	Risk / Planning
Other Planning Outputs			Scope Definition	Scope / Planning
Other Planning Outputs			Solicitation Planning	Procurement / Planning
Other Process Outputs			Quality Planning	Quality / Planning
Other Project Records			Administrative Closure	Communications / Closing
Other Project Records			Performance Reporting	Communications / Controlling
Payment Requests	Contract Administration	Procurement / Execution		
Performance Improvements	Team Development	Human Resources / Execution		
Performance Measurement Documentation			Administrative Closure	Communications / Closing
Performance Reports	Performance Reporting	Communications / Controlling	Cost Control	Cost / Controlling
Performance Reports	Performance Reporting	Communications / Controlling	Integrated Change Control	Integration / Controlling
Performance Reports	Performance Reporting	Communications / Controlling	Schedule Control	Time / Controlling
Performance Reports	Performance Reporting	Communications / Controlling	Scope Change Control	Scope / Controlling
Performance Reports	Performance Reporting	Communications / Controlling	Team Development	Human Resources / Execution
Preventative Action			Project Plan Execution	Integration / Execution
Prioritized List of Quantified Risks	Quantitative Risk Analysis	Risk / Planning	Risk Response Planning	Risk / Planning
Probabilistic Analysis of the Project	Quantitative Risk Analysis	Risk / Planning	Risk Response Planning	Risk / Planning
Probability of Achieving the Cost and Time Objectives	Quantitative Risk Analysis	Risk / Planning	Risk Response Planning	Risk / Planning
Process Adjustments	Quality Control	Quality / Controlling		

Outputs in Alphabetical Order	Output Process	Output KA / PG	Input Process	Input KA / PG
Procurement Documents	Solicitation Planning	Procurement / Planning	Solicitation	Procurement / Execution
Procurement Management Plan	Procurement Planning	Procurement / Planning	Solicitation Planning	Procurement / Planning
Procurement Resources			Procurement Planning	Procurement / Planning
Product Description			Activity Sequencing	Time / Planning
Product Description			Initiation	Scope / Initiation
Product Description			Procurement Planning	Procurement / Planning
Product Description			Quality Planning	Quality / Planning
Product Description			Scope Planning	Scope / Planning
Product Documentation			Administrative Closure	Communications / Closing
Product Documentation			Scope Verification	Scope / Controlling
Project Archives	Administrative Closure	Communications / Closing		
Project Charter	Initiation	Scope / Initiation	Risk Management Planning	Risk / Planning
Project Charter	Initiation	Scope / Initiation	Scope Planning	Scope / Planning
Project Closeout	Cost Control	Cost / Controlling		
Project Closure	Administrative Closure	Communications / Closing		
Project Communication			Risk Monitoring and Control	Risk / Controlling
Project Interfaces			Organizational Planning	Human Resources / Planning
Project Manager identified / assigned	Initiation	Scope / Initiation		
Project Network Diagrams	Activity Sequencing	Time / Planning	Schedule Development	Time / Planning
Project Plan	Project Plan Development	Integration / Planning	Information Distribution	Communications / Execution
Project Plan	Project Plan Development	Integration / Planning	Integrated Change Control	Integration / Controlling
Project Plan	Project Plan Development	Integration / Planning	Performance Reporting	Communications / Controlling
Project Plan	Project Plan Development	Integration / Planning	Project Plan Execution	Integration / Execution
Project Plan	Project Plan Development	Integration / Planning	Scope Verification	Scope / Controlling
Project Plan	Project Plan Development	Integration / Planning	Team Development	Human Resources / Execution
Project Plan Updates	Integrated Change Control	Integration / Controlling		
Project Planning Outputs			Risk Identification	Risk / Planning
Project Presentations	Information Distribution	Communications / Execution		
Project Records	Information Distribution	Communications / Execution		
Project Reports	Information Distribution	Communications / Execution		
Project Schedule	Schedule Development	Time / Planning	Cost Budgeting	Cost / Planning
Project Schedule	Schedule Development	Time / Planning	Schedule Control	Time / Controlling
Project Selection Criteria			Initiation	Scope / Initiation
Project Staff			Team Development	Human Resources / Execution
Project Staff Assigned	Staff Acquisition	Human Resources / Planning		
Project Status			Qualitative Risk Analysis	Risk / Planning
Project Team Directory	Staff Acquisition	Human Resources / Planning		
Project Type			Qualitative Risk Analysis	Risk / Planning
Proposals	Solicitation	Procurement / Execution	Source Selection	Procurement / Execution
Qualified Sellers List			Solicitation	Procurement / Execution
Quality Improvement	Quality Assurance	Quality / Executing		
Quality Improvement	Quality Control	Quality / Controlling		
Quality Management Plan	Quality Planning	Quality / Planning	Quality Assurance	Quality / Executing
Quality Management Plan	Quality Planning	Quality / Planning	Quality Control	Quality / Controlling
Quality Policy			Quality Planning	Quality / Planning
Recruitment Practices			Staff Acquisition	Human Resources / Planning
Residual Risks	Risk Response Planning	Risk / Planning		
Resource Capabilities			Activity Duration Estimating	Time / Planning
Resource Pool Description			Resource Planning	Cost / Planning
Resource Pool Description			Schedule Development	Time / Planning
Resource Rates			Cost Estimating	Cost / Planning
Resource Requirement Updates	Schedule Development	Time / Planning		
Resource Requirements	Resource Planning	Cost / Planning	Activity Duration Estimating	Time / Planning
Resource Requirements	Resource Planning	Cost / Planning	Cost Estimating	Cost / Planning
Resource Requirements	Resource Planning	Cost / Planning	Schedule Development	Time / Planning
Results of Quality Control Measurements			Quality Assurance	Quality / Executing
Revised Cost Estimates	Cost Control	Cost / Controlling		
Rework	Quality Control	Quality / Controlling		
Risk Categories			Risk Identification	Risk / Planning
Risk Database	Risk Monitoring and Control	Risk / Controlling		
Risk Management Plan	Risk Management Planning	Risk / Planning	Cost Budgeting	Cost / Planning
Risk Management Plan	Risk Management Planning	Risk / Planning	Qualitative Risk Analysis	Risk / Planning
Risk Management Plan	Risk Management Planning	Risk / Planning	Quantitative Risk Analysis	Risk / Planning
Risk Management Plan	Risk Management Planning	Risk / Planning	Risk Identification	Risk / Planning
Risk Management Plan	Risk Management Planning	Risk / Planning	Risk Monitoring and Control	Risk / Controlling
Risk Management Plan	Risk Management Planning	Risk / Planning	Risk Response Planning	Risk / Planning
Risk Management Plan	Risk Management Planning	Risk / Planning	Schedule Development	Time / Planning
Risk Owners			Risk Response Planning	Risk / Planning
Risk Ranking for the Project	Qualitative Risk Analysis	Risk / Planning	Risk Response Planning	Risk / Planning
Risk Response Plan	Risk Response Planning	Risk / Planning	Risk Monitoring and Control	Risk / Controlling
Risk Thresholds			Risk Response Planning	Risk / Planning

Outputs in Alphabetical Order	Output Process	Output KA / PG	Input Process	Input KA / PG
Risks	Risk Identification	Risk / Planning	Cost Estimating	Cost / Planning
Roles and Responsibility Assignments	Organizational Planning	Human Resources / Planning		
Scale of Probability and Impact			Qualitative Risk Analysis	Risk / Planning
Schedule Management Plan	Schedule Development	Time / Planning	Schedule Control	Time / Controlling
Schedule Updates	Schedule Control	Time / Controlling		
Scope Changes	Scope Change Control	Scope / Controlling	Risk Monitoring and Control	Risk / Controlling
Scope Management Plan	Scope Planning	Scope / Planning	Scope Change Control	Scope / Controlling
Scope Statement	Scope Planning	Scope / Planning	Activity Definition	Time / Planning
Scope Statement	Scope Planning	Scope / Planning	Procurement Planning	Procurement / Planning
Scope Statement	Scope Planning	Scope / Planning	Quality Planning	Quality / Planning
Scope Statement	Scope Planning	Scope / Planning	Resource Planning	Cost / Planning
Scope Statement	Scope Planning	Scope / Planning	Scope Definition	Scope / Planning
Scope Statement	Scope Planning	Scope / Planning	Scope Verification	Scope / Controlling
Scope Statement Updates	Scope Definition	Scope / Planning		
Secondary Risks	Risk Response Planning	Risk / Planning		
Seller Invoices			Contract Administration	Procurement / Execution
Staffing Management Plan	Organizational Planning	Human Resources / Planning	Staff Acquisition	Human Resources / Planning
Staffing Management Plan	Organizational Planning	Human Resources / Planning	Team Development	Human Resources / Execution
Staffing Pool Description			Staff Acquisition	Human Resources / Planning
Staffing Requirements			Organizational Planning	Human Resources / Planning
Stakeholder Risk Tolerances			Risk Management Planning	Risk / Planning
Standards and Regulation			Quality Planning	Quality / Planning
Statement of Work Updates	Solicitation Planning	Procurement / Planning		
Statements of Work	Procurement Planning	Procurement / Planning	Solicitation Planning	Procurement / Planning
Strategic Plan			Initiation	Scope / Initiation
Supporting Detail	Activity Definition	Time / Planning		
Supporting Detail	Cost Estimating	Cost / Planning		
Supporting Detail	Organizational Planning	Human Resources / Planning		
Supporting Detail	Project Plan Development	Integration / Planning	Project Plan Execution	Integration / Execution
Supporting Detail	Schedule Development	Time / Planning		
Supporting Detail	Scope Planning	Scope / Planning		
Template for Organization's Risk Management Plan			Risk Management Planning	Risk / Planning
Trend in Qualitative Risk Analysis Results	Qualitative Risk Analysis	Risk / Planning	Risk Response Planning	Risk / Planning
Trend in Quantitative Risk Analysis Results	Quantitative Risk Analysis	Risk / Planning	Risk Response Planning	Risk / Planning
Triggers	Risk Identification	Risk / Planning		
Updates to risk identification checklists	Risk Monitoring and Control	Risk / Controlling		
Updates to the Risk Response Plan	Risk Monitoring and Control	Risk / Controlling		
Work Breakdown Structure	Scope Definition	Scope / Planning	Activity Definition	Time / Planning
Work Breakdown Structure	Scope Definition	Scope / Planning	Cost Budgeting	Cost / Planning
Work Breakdown Structure	Scope Definition	Scope / Planning	Cost Estimating	Cost / Planning
Work Breakdown Structure	Scope Definition	Scope / Planning	Resource Planning	Cost / Planning
Work Breakdown Structure	Scope Definition	Scope / Planning	Risk Management Planning	Risk / Planning
Work Breakdown Structure	Scope Definition	Scope / Planning	Scope Change Control	Scope / Controlling
Work Breakdown Structure	Scope Definition	Scope / Planning	Scope Verification	Scope / Controlling
Work Breakdown Structure Updates	Activity Definition	Time / Planning		
Work Results	Project Plan Execution	Integration / Execution	Contract Administration	Procurement / Execution
Work Results	Project Plan Execution	Integration / Execution	Information Distribution	Communications / Execution
Work Results	Project Plan Execution	Integration / Execution	Performance Reporting	Communications / Controlling
Work Results	Project Plan Execution	Integration / Execution	Quality Control	Quality / Controlling
Work Results	Project Plan Execution	Integration / Execution	Scope Verification	Scope / Controlling
Workaround Plans	Risk Monitoring and Control	Risk / Controlling		

Tool & Technique in Alphabetical Order	KA / PG	Process
Tools and Techniques described in the PMI PMBOK 2000		
Acceptance	Risk / Planning	Risk Response Planning
Additional planning	Cost / Controlling	Cost Control
Additional planning	Integration / Controlling	Integrated Change Control
Additional planning	Scope / Controlling	Scope Change Control
Additional planning	Time / Controlling	Schedule Control
Additional risk response planning	Risk / Controlling	Risk Monitoring and Control
Advertising	Procurement / Executing	Solicitation
Alternatives identification	Cost / Planning	Resource Planning
Alternatives identification	Scope / Planning	Scope Planning
Analogous estimating	Cost / Planning	Cost Estimating
Analogous estimating	Time / Planning	Activity Duration Estimating
Arrow diagramming method (ADM)	Time / Planning	Activity Sequencing
Assumptions analysis	Risk / Planning	Risk Identification
Avoidance	Risk / Planning	Risk Response Planning
Benchmarking	Quality / Planning	Quality Planning
Benefit / cost analysis	Quality / Planning	Quality Planning
Benefit / cost analysis	Scope / Planning	Scope Planning
Bidder conferences	Procurement / Executing	Solicitation
Bottom-up estimating	Cost / Planning	Cost Estimating
Change control system	Integration / Controlling	Integrated Change Control
Checklists	Risk / Planning	Risk Identification
Coding structure	Time / Planning	Schedule Development
Collocation	Human Resources / Executing	Team Development
Communications skills	Communications / Executing	Information Distribution
Computerized tools	Cost / Controlling	Cost Control
Computerized tools	Cost / Planning	Cost Estimating
Conditional diagramming methods	Time / Planning	Activity Sequencing
Configuration management	Integration / Controlling	Integrated Change Control
Contract change control system	Procurement / Executing	Contract Administration
Contract negotiation	Procurement / Executing	Source Selection
Contract type selection	Procurement / Planning	Procurement Planning
Control charts	Quality / Controlling	Quality Control
Cost budgeting tools and techniques	Cost / Planning	Cost Budgeting
Cost change control system	Cost / Controlling	Cost Control
Cost of quality	Quality / Planning	Quality Planning
Data precision ranking	Risk / Planning	Qualitative Risk Analysis
Decision tree analysis	Risk / Planning	Quantitative Risk Analysis
Decomposition	Scope / Planning	Scope Definition
Decomposition	Time / Planning	Activity Definition
Design of experiments	Quality / Planning	Quality Planning
Diagramming techniques	Risk / Planning	Risk Identification
Documentation reviews	Risk / Planning	Risk Identification
Duration compression	Time / Planning	Schedule Development
Earned value management (EVM)	Communications / Controlling	Performance Reporting
Earned value management (EVM)	Cost / Controlling	Cost Control
Earned value management (EVM)	Integration / Planning	Project Plan Development
Earned value management (EVM)	Risk / Controlling	Risk Monitoring and Control
Expert judgment	Cost / Planning	Resource Planning
Expert judgment	Procurement / Planning	Procurement Planning
Expert judgment	Procurement / Planning	Solicitation Planning
Expert judgment	Scope / Initiation	Initiation
Expert judgment	Scope / Planning	Scope Planning
Expert judgment	Time / Planning	Activity Duration Estimating
Flow-charting	Quality / Controlling	Quality Control

Tool & Technique in Alphabetical Order	KA / PG	Process
Flow-charting	Quality / Planning	Quality Planning
General management skills	Human Resources / Executing	Team Development
General management skills	Integration / Executing	Project Plan Execution
Human resources practices	Human Resources / Planning	Organizational Planning
Independent estimates	Procurement / Executing	Source Selection
Information distribution methods	Communications / Executing	Information Distribution
Information distribution tools and techniques	Communications / Controlling	Performance Reporting
Information gathering techniques	Risk / Planning	Risk Identification
Information retrieval systems	Communications / Executing	Information Distribution
Inspection	Quality / Controlling	Quality Control
Inspection	Scope / Controlling	Scope Verification
Interviewing	Risk / Planning	Quantitative Risk Analysis
Make-or-buy analysis	Procurement / Planning	Procurement Planning
Mathematical analysis	Time / Planning	Schedule Development
Mitigation	Risk / Planning	Risk Response Planning
Negotiations	Human Resources / Planning	Staff Acquisition
Network templates	Time / Planning	Activity Sequencing
Organizational procedures	Integration / Executing	Project Plan Execution
Organizational theory	Human Resources / Planning	Organizational Planning
Other cost estimating methods	Cost / Planning	Cost Estimating
Parametric estimating	Cost / Planning	Cost Estimating
Pareto diagrams	Quality / Controlling	Quality Control
Payment system	Procurement / Executing	Contract Administration
Performance measurement	Cost / Controlling	Cost Control
Performance measurement	Integration / Controlling	Integrated Change Control
Performance measurement	Scope / Controlling	Scope Change Control
Performance measurement	Time / Controlling	Schedule Control
Performance reporting	Procurement / Executing	Contract Administration
Performance reporting tools and techniques	Communications / Closing	Administrative Closure
Performance reviews	Communications / Controlling	Performance Reporting
Periodic project risk reviews	Risk / Controlling	Risk Monitoring and Control
Planning meetings	Risk / Planning	Risk Management Planning
Preassignment	Human Resources / Planning	Staff Acquisition
Precedence diagramming method (PDM)	Time / Planning	Activity Sequencing
Probability / Impact risk rating matrix	Risk / Planning	Qualitative Risk Analysis
Procurement	Human Resources / Planning	Staff Acquisition
Procurement audits	Procurement / Closing	Contract Closeout
Product analysis	Scope / Planning	Scope Planning
Product skills and knowledge	Integration / Executing	Project Plan Execution
Project assumptions testing	Risk / Planning	Qualitative Risk Analysis
Project management information system (PMIS)	Integration / Controlling	Integrated Change Control
Project management information system (PMIS)	Integration / Executing	Project Plan Execution
Project management information system (PMIS)	Integration / Planning	Project Plan Development
Project management software	Cost / Planning	Resource Planning
Project management software	Time / Controlling	Schedule Control
Project management software	Time / Planning	Schedule Development
Project planning methodology	Integration / Planning	Project Plan Development
Project presentations	Communications / Closing	Administrative Closure
Project reports	Communications / Closing	Administrative Closure
Project risk response audits	Risk / Controlling	Risk Monitoring and Control
Project selection methods	Scope / Initiation	Initiation
Quality audits	Quality / Executing	Quality Assurance
Quality planning tools and techniques	Quality / Executing	Quality Assurance
Quantitatively based durations	Time / Planning	Activity Duration Estimating
Reserve time (contingency)	Time / Planning	Activity Duration Estimating
Resource leveling heuristics	Time / Planning	Schedule Development

Tool & Technique in Alphabetical Order	KA / PG	Process
Reward and recognition systems	Human Resources / Executing	Team Development
Risk probability and impact	Risk / Planning	Qualitative Risk Analysis
Schedule change control system	Time / Controlling	Schedule Control
Scope change control system	Scope / Controlling	Scope Change Control
Screening system	Procurement / Executing	Source Selection
Sensitivity analysis	Risk / Planning	Quantitative Risk Analysis
Simulation	Risk / Planning	Quantitative Risk Analysis
Simulation	Time / Planning	Schedule Development
Stakeholder analysis	Communications / Planning	Communications Planning
Stakeholder analysis	Human Resources / Planning	Organizational Planning
Stakeholder skills and knowledge	Integration / Planning	Project Plan Development
Standard forms	Procurement / Planning	Solicitation Planning
Statistical sampling	Quality / Controlling	Quality Control
Status review meetings	Integration / Executing	Project Plan Execution
Team-building activities	Human Resources / Executing	Team Development
Technical performance measurement	Risk / Controlling	Risk Monitoring and Control
Templates	Human Resources / Planning	Organizational Planning
Templates	Time / Planning	Activity Definition
Training	Human Resources / Executing	Team Development
Transference	Risk / Planning	Risk Response Planning
Trend analysis	Communications / Controlling	Performance Reporting
Trend analysis	Quality / Controlling	Quality Control
Variance analysis	Communications / Controlling	Performance Reporting
Variance analysis	Time / Controlling	Schedule Control
Weighting system	Procurement / Executing	Source Selection
Work authorization system	Integration / Executing	Project Plan Execution
Work breakdown structure templates	Scope / Planning	Scope Definition

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