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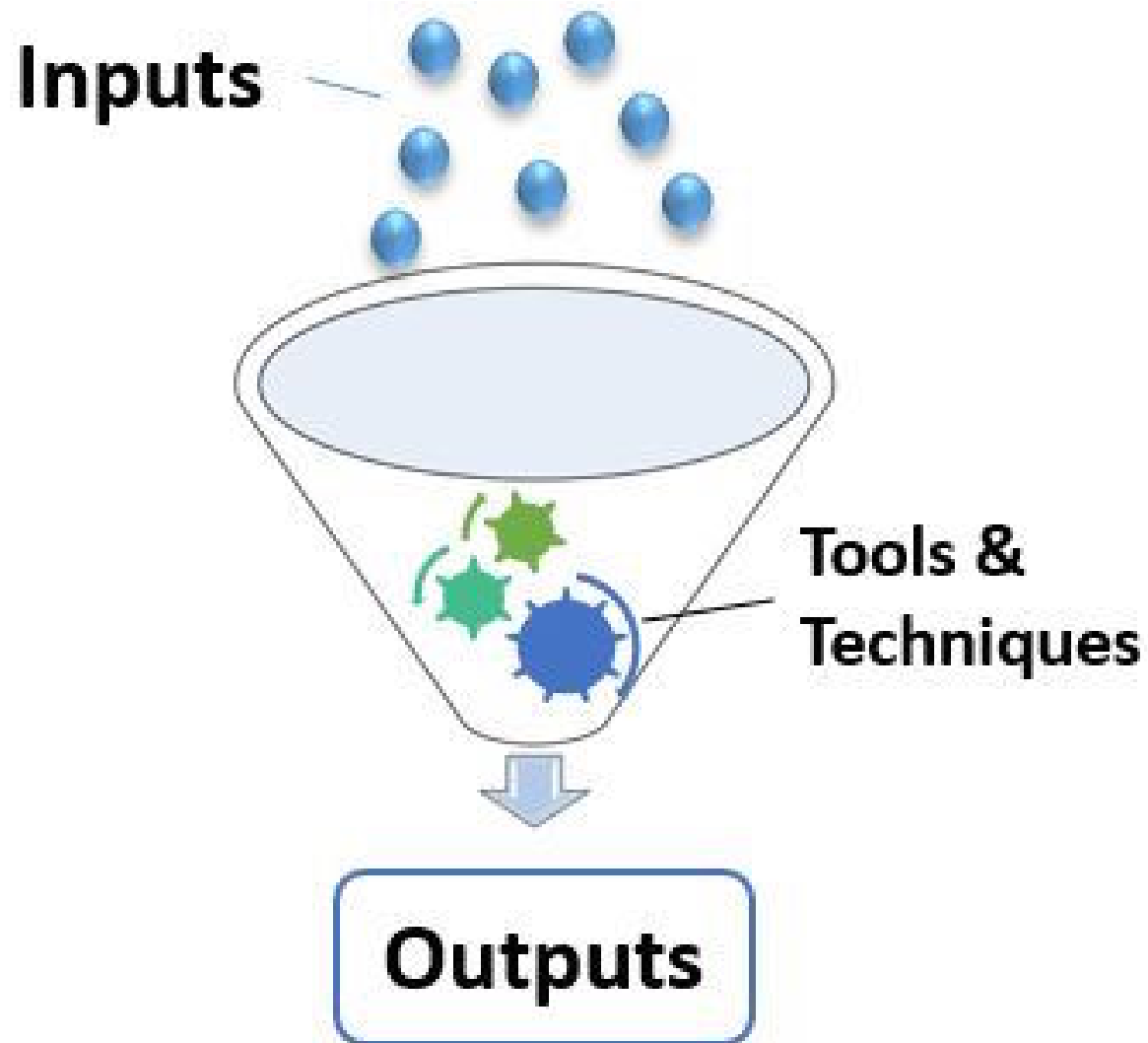
on

Project Management

ITTO's

(Input, Tool & Techniques, Output)

Compiled by Abdulla PMI-ACP, SCT, CSM, PMP
Based on *PMBOK*®GUIDE Sixth Edition

Inputs

Tools & Techniques

Outputs

PROJECT INTEGRATION MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT
Develop Project Charter	Formal authorization of the project or phase	Initiating	1. Business Documents • Business Case • Benefit Management plan 2. Agreements 3. Enterprise environmental Factors 4. Organizational process assets	1. Expert judgment 2. Data Gathering • Brainstorming • Focus Group • Interviews 3. Interpersonal and Team Skills • Conflict Management • Facilitation • Meeting Management 4. Meetings	1. Project charter 2. Assumptions Log
Develop Project Management Plan	Document actions to define, prepare, integrate, and coordinate subsidiary plans into the PMP	Planning	1. Project charter 2. Outputs from other processes 3. Enterprise environmental factors 4. Organizational process assets	1. Expert judgment 2. Data Gathering • Brainstorming • Checklists • Focus Group • Interviews 3. Interpersonal and Team Skills • Conflict Management • Facilitation • Meeting Management 4. Meetings	1. Project management plan
Direct and Manage Project Work	Execute the work defined in the project management plan to achieve requirements in scope statement.	Executing	1. Project management plan • Any Documents 2. Project Documents • Change Log • Lessons Learned Register • Milestone List • Project Communications • Project Schedule • Requirement Traceability Matrix	1. Expert Judgement 2. Project management information system 3. Meetings	1. Deliverables 2. Work performance data 3. Issue Log 4. Change requests 5. Project management plan Updates • Any components 6. Project documents updates • Activity List • Assumptions Log

			• Risk register • Risk Report 3. Approved change requests 4. Enterprise environmental factors 5. Organizational process assets		• Lessons Learned Register • Requirement Documentation • Risk register • Stakeholder Register 7. Organizational Process Asset Updates

Manage Project Knowledge	This is the process of using existing knowledge and creating new knowledge to achieve the project's objectives and contribute to organizational learning.	Executing	1. Project management plan
			  • All Components
			2. Project Documents
			  • Lessons learned register
			  • Project Team Assignment
			  • Resource Breakdown
			  • Structure
			  • Source Selection Criteria
			  • Stakeholder Register
			3. Deliverables
			4. Enterprise environmental factors
			5. Organizational process assets
				1. Expert Judgement
				2. Knowledge Management
				3. Information Management
				4. Interpersonal and Team Skills
				  • Active Listening
				  • Facilitation
				  • Leadership
				  • Networking
				  • Political Awareness
					1. Lessons Learned Register
					2. Project Management Plan Updates
					  • Any component
					3. Organizational process asset updates

Monitor and Control Project Work	Monitor and control the processes to meet the performance objectives.	Monitoring and Controlling	1. Project management plan
			  • Any components
			2. Project Documents
			  • Assumption Log
			  • Basis of Estimates
			  • Cost Forecasts
			  • Issue log
			  • Lessons Learned Register
			  • Milestone list
			  • Quality Reports
			  • Risk Register
			  • Risk Report
			  • Schedule Forecasts
			3. Work performance information
			4. Agreement
			5. Enterprise Environment Factors
			6. Organizational Process Assets.
				1. Expert judgment
				2. Data Analysis
				  • Alternative Analysis
				  • Cost Benefit Analysis
				  • Earned Value Analysis
				  • Root Cause Analysis
				  • Trend Analysis
				  • Variance Analysis
				3. Decision Making
				4. Meetings
					1. Work Performance Reports
					2. Change requests
					3. Work performance reports
					4. Project management plan updates
					  • Any components
					5. Project documents updates
					
					  • Cost Forecasts
					  • Issue Log
					  • Lessons Learned Register
					  • Risk Register
					  • Schedule Forecast

| Perform Integrated Change Control | Reviewing change requests, approving change requests and controlling changes | Monitoring and Controlling | 1. Project management plan
• Change Management Plan
• Configuration Management Plan
• Scope Baseline
• Schedule Baseline
• Cost Baseline
2. Project Documents
• Basis of Estimates
• Requirement Traceability Matrix
• Risk Report
3. Work performance reports
4. Change requests
5. Enterprise environmental factors
6. Organizational process assets | 1. Expert judgment
2. Change control tools
3. Data Analysis
• Alternative Analysis
• Cost Benefit Analysis
4. Decision Making
• Voting
• Autocratic Decision Making
• Multi criteria Decision Analysis
5. Meeting | 1. Approved change requests
2. Project management plan updates
• Any components
3. Project documents updates
• Change log |
| Close Project or Phase | Finalize all activities to formally close the project or phase. | Closing | 1. Project Charter
2. Project management plan
• All Components
3. Project documents
• Assumption Log
• Basis of Estimates
• Change Log
• Issue Log
• Lessons Learned Register
• Milestone List
• Project Communications
• Quality Control Measurement
• Quality Reports
• Requirement Documentation
• Risk Register
• Risk Report
4. Accepted deliverables
5. Business Documents
• Business Case
• Benefit Management Plan | 1. Expert judgment
2. Data Analysis
• Document Analysis
• Regression Analysis
• Trend Analysis
• Variance Analysis
3. Meetings | 1. Project Document Updates
• Lessons Learned Register
2. Final product, service, or result transition
3. Final Report
4. Organizational Process Asset Update |

		6. Agreement 7. Procurement Documentation 8. Organizational Process Assets	

PROJECT SCOPE MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT

Plan Scope Management	Documents how the project scope will be defined, validated, and controlled.	Planning	1. Project charter
			2. Project Management Plan
			   • Quality Management Plan
			   • Project life cycle description
			   • Development approach
			3. Enterprise environmental factors
			4. Organizational process assets
				1. Expert judgment
				2. Data Analysis
				   • Alternative Analysis
				3. Meetings
					1. Scope management plan
					2. Requirements management plan

Collect Requirements	Defining and documenting stakeholders' needs to ensure project objectives are met.	Planning	1. Project charter
			2. Project management plan
			   • Scope management plan
			   • Requirements management plan
			   • Stakeholder engagement plan
			3. Project documents
			   • Assumption log
			   • Lessons learned register
			   • Stakeholder register
			4. Business documents
			   • Business case
			5. Agreements
			6. Enterprise environmental
			7. Factors
			8. Organizational process assets
				1. Expert judgment
				2. Data gathering
				   • Brainstorming
				   • Interviews
				   • Focus groups
				   • Questionnaires and surveys
				   • Benchmarking
				3. Data analysis
				   • Document analysis
				4. Decision making
				   • Voting
				   • Multicriteria decision analysis
				5. Data representation
				   • Affinity diagrams
				   • Mind mapping
				6. Interpersonal and team skills
				   • Nominal group technique
				   • Observation/conversation
				   • Facilitation
					1. Requirements documentation
					2. Requirements traceability matrix

					7. Context diagram 8. Prototypes	
Define Scope	Developing detailed description of the project and product as a basis for future decisions.	Planning	1. Project charter 2. Project management plan • Scope management plan 3. Project documents • Assumption log • Requirements documentation • Risk register 4. Enterprise environmental factors 5. Organizational process assets	1. Expert judgment 2. Data analysis • Alternatives analysis 3. Decision Making • Multicriteria decision analysis 4. Interpersonal and team skills • Facilitation 5. Product analysis	1. Project scope statement 2. Project documents updates • Assumption log • Requirements • documentation • Requirements traceability matrix • Stakeholder register
Create WBS	Subdividing major deliverables into smaller components	Planning	1. Project management plan • Scope management plan 2. Project documents • Project scope statement • Requirements documentation 3. Enterprise environmental factors 4. Organizational process assets	1. Decomposition 2. Expert judgment	1. Scope baseline 2. Project documents updates • Assumption log • Requirements • documentation
Validate Scope	Formal acceptance of the completed project deliverables.	Monitoring and Controlling	1. Project management plan • Scope management plan • Requirements management plan • Scope baseline 2. Project documents • Lessons learned register • Quality reports • Requirements documentation • Requirements traceability matrix 3. Verified deliverables 4. Work performance data	1. Inspection 2. Decision-making - Voting	1. Accepted deliverables 2. Work performance information 3. Change requests 4. Project document updates • Lessons learned register • Requirements Documentation • Requirements traceability matrix
Control Scope	Monitoring status of the project and product scope and managing changes to	Monitoring and Controlling	1. Project management plan • Scope management plan • Requirements management Plan	1. Data Analysis • Variance analysis • Trend Analysis	1. Work performance information 2. Change requests 3. Project management plan updates

scope baseline.		• Change management plan • Configuration management Plan • Scope baseline • Performance measurement baseline 2. Project documents • Lessons learned register • Requirements documentation • Requirements traceability Matrix 3. Work performance data 4. Organizational process assets			• Scope management plan • Scope baseline • Schedule baseline • Cost baseline • Performance measurement baseline 1. Project documents updates • Lessons learned register • Requirements documentation • Requirements traceability matrix

PROJECT SCHEDULE MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT
Plan Schedule Management	Documentation for Planning, developing, managing, executing, and controlling the project schedule	Planning	1 Project charter 2 Project management plan • Scope management plan • Development approach 3 Enterprise environmental factors 4 Organizational process assets	1. Expert judgment 2. Data Analysis 3. Meetings	1. Schedule management plan
Define Activities	Identifying and documenting the specific actions to be performed to produce the project deliverables	Planning	1. Project Management Plan • Schedule management plan • Scope baseline 2. Enterprise environmental factors 3. Organizational process assets	1. Decomposition 2. Rolling wave planning 3. Expert judgment 4. Meeting	1. Activity list 2. Activity attributes 3. Milestone list 4. Change requests 5. Project management plan updates • Schedule baseline • Cost baseline
Sequence Activities	Identify and document the logical	Planning	1. Project management plan • Schedule management plan	1. Precedence diagramming method (PDM)	1. Project schedule network diagrams

	relationships and dependencies		• Scope baseline
			2. Project documents
			   • Activity attributes
			   • Activity list
			   • Assumption log
			   • Milestone list
			3. Enterprise environmental Factors
			4. Organizational process assets
				2. Dependency determination
				3. Leads and lags
				4. Project Management information system
					2. Project documents updates
					   • Activity attributes
					   • Activity list
					   • Assumption log
					   • Milestone list

Estimate Activity Durations	Estimate # of work periods per activity	Planning	1. Project Management Plan
			   • Schedule management plan
			   • Scope Baseline
			2. Project Documents
			   • Activity attributes
			   • Activity list
			   • Assumption log
			   • Lessons learned register
			   • Milestone list
			   • Project team assignments
			   • Resource breakdown structure
			   • Resource calendars
			   • Resource requirements
			   • Risk register
			3. Enterprise environmental factors
			4. Organizational process assets
				1. Expert judgment
				2. Analogous estimating
				3. Parametric estimating
				4. Three-point estimating
				5. Bottom-up estimating
				6. Data analysis
				   • Alternatives analysis
				   • Reserve analysis
				7. Decision-making techniques
				8. Meeting
					1. Duration estimates
					2. Basis of estimates
					.3 Project documents updates
					   • Activity attributes
					   • Assumption log
					   • Lessons learned register

Develop Schedule	Analyze sequences, durations, resources and constraints to document project schedule	Planning	1. Project management plan
			   • Schedule management plan
			   • Scope baseline
			2. Project Documents
			   • Activity attributes
			   • Activity list
			   • Assumption log
			   • Basis of estimates
			   • Duration estimates
			   • Lessons learned register
			   • Milestone list
			   • Project schedule network diagrams
				1. Schedule network analysis
				2. Critical path method
				3. Resource optimization techniques
				4. Data analysis
				What-if scenario analysis
				Simulation
				5. Leads and lags
				6. Schedule compression
				7. Project management information system
				8. Agile release planning
					1. Schedule baseline
					2. Project schedule
					3. Schedule data
					4. Project calendars
					5. Change requests
					6. Project management plan updates
					   • Schedule management plan
					   • Cost baseline
					7. Project documents updates
					   • Activity attributes
					   • Assumption log

			• Project team assignments • Resource calendars • Resource requirements • Risk register 3. Agreement 4. Enterprise environmental factors 5. Organizational process assets		• Duration estimates • Lessons learned register • Resource requirements • Risk register
Control Schedule	Controlling changes	Monitoring and Controlling	1. Project management plan • Schedule management plan • Schedule baseline • Scope baseline • Performance measurement baseline 2. Project Documents • Lessons learned register • Project calendars • Project schedule • Resource calendars • Schedule data 3. Work performance data 4. Organizational process assets	1. Data Analysis • Earned value analysis • Iteration burndown chart • Performance reviews • Trend analysis • Variance analysis • What-if scenario analysis 2. Critical path method 3. Project management information system 4. Resource optimization 5. Leads and lags 6. Schedule compression	1. Work performance information 2. Schedule forecasts 3. Change requests 4. Project management plan updates • Schedule management plan • Schedule baseline • Cost baseline • Performance measurement baseline 5. Project documents updates • Assumption log • Basis of estimates • Lessons learned register • Project schedule • Resource calendars • Risk register • Schedule data

PROJECT COST MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT

Plan Cost Management	Documentation for planning, managing, expending, and controlling project costs	Planning	1. Project Charter
			2. Project management plan
			  • Schedule management plan
			  • Risk management plan
			3. Enterprise environmental factors
			4. Organizational process assets
				1. Expert judgment
				2. Data Analysis
				3. Meetings
					1. Cost management plan

Estimate Cost	Develop an approximation of the costs of the resources to complete project activities	Planning	1. Project management plan
			  • Cost management plan
			  • Quality management plan
			  • Scope baseline
			2. Project documents
			  • Lessons learned register
			  • Project schedule
			  • Resources requirements
			  • Risk register
			
			3. Enterprise environmental factors
			4. Organizational process assets
				1. Expert judgment
				2. Analogous estimating
				3. Parametric estimating
				4. Bottom-up estimating
				5. Three-point estimating
				6. Data analysis
				  • Alternatives analysis
				  • Reserve analysis
				  • Cost of quality
				7. Project management Information System
				8. Decision-making
				  • Voting
					1. Cost estimates
					2. Basis of estimates
					3. Project documents updates
					  • Assumption log
					  • Lessons learned register
					  • Risk register

Determine Budget	Aggregating estimated costs to establish an authorized cost baseline.	Planning	1. Project management plan
			  • Cost management plan
			  • Resource management plan
			  • Scope baseline
			2. Project documents
			  • Basis of estimates
			  • Cost estimates
			  • Project schedule
			  • Risk register
			3. Business documents
			  • Business case
			  • Benefits management plan
			4. Agreement
			5. Enterprise environmental
			6. Organizational process assets
				1. Expert judgment
				2. Cost aggregation
				3. Data analysis
				  • Reserve analysis
				4. Historical information review
				5. Funding limit reconciliation
				6. Financing
					1. Cost baseline
					2. Project funding requirements
					3. Project documents updates
					  • Cost estimates
					  • Project schedule
					  • Risk register

| Control Cost | Monitoring status of the project to update the project budget and managing changes to the cost baseline | Monitoring and Controlling | 1. Project management plan
 • Cost management plan
 • Cost baseline
 • Performance measurement Baseline
2. Project documents
 • Lessons learned register
3. Project funding requirements
4. Work performance data
5. Organizational process assets | 1. Expert judgment
2. Data analysis
 • Earned value analysis
 • Variance analysis
 • Trend analysis
 • Reserve analysis
3. To-complete performance index
4. Project management information system | 1. Work performance information
2. Cost forecasts
3. Change requests
4. Project management plan updates
 • Cost management plan
 • Cost baseline
Performance measurement baseline
5. Project documents updates
 • Assumption log
 • Basis of estimates
 • Cost estimates
 • Lessons learned register
 • Risk register |

PROJECT QUALITY MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT
Plan Quality Management	Identifying quality Requirements and/or standards for the project and product and documenting how the project will demonstrate compliance.	Planning	1. Project Charter 2. Project management plan • Requirements management plan • Risk management plan • Stakeholder engagement Plan • Scope baseline 3. Project documents • Assumption log • Requirements documentation • Requirements traceability matrix	1. Expert judgment 2. Data gathering • Benchmarking • Brainstorming • Interviews 3. Data analysis • Cost-benefit analysis • Cost of quality 4. .Decision making • Multicriteria decision Analysis 5. Data representation • Flowcharts • Logical data model	1. Quality management plan 2. Quality metrics 3. Project management plan Updates • Risk management plan • Scope baseline 4. Project documents updates • Lessons learned register • Requirements traceability Matrix • Risk register • Stakeholder register

			Inputs	Tools & Techniques	Outputs
			• Risk register • Stakeholder register 4. Enterprise environmental factors 5. Organizational process assets	• Matrix diagrams • Mind mapping 6. Test and inspection planning 7. Meetings	

Manage Quality	Auditing the quality Requirements and the results from quality control measurements to ensure appropriate quality standards and operations definitions are used.	Executing	1. Project management plan
			  • Quality management plan
			2. Project documents
			  • Lessons learned register
			  • Quality control measurements
			  • Quality metrics
			  • Risk report
			3. Organizational process assets
				1. Data gathering
				  • Checklists
				2. Data analysis
				  • Alternatives analysis
				  • Document analysis
				  • Process analysis
				  • Root cause analysis
				3. .Decision making
				  • Multicriteria decision analysis
				4. .Data representation
				  • Affinity diagrams
				  • Cause-and-effect diagrams
				  • Flowcharts
				  • Histograms
				  • Matrix diagrams
				  • Scatter diagrams
				5. Audits
				6. Design for X
				7. Problem solving
				8. Quality improvement methods
					1. Quality reports
					2. Test and evaluation Documents
					3. Change requests
					4. Project management plan updates
					  • Quality management plan
					  • Scope baseline
					  • Schedule baseline
					  • Cost baseline
					5. Project documents updates
					  • Issue log
					  • Lessons learned register
					  • Risk register

Control Quality	Monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes.	Monitoring and Controlling	1. Project management plan
			  Quality management plan
			2. Project documents
			  • Lessons learned register
			  • Quality metrics
			  • Test and evaluation documents
			3. Approved change requests
			4. Deliverables
			5. Work performance data
			6. Enterprise environmental factors
				1. Data gathering
				  • Checklists
				  • Check sheets
				  • Statistical sampling
				  • Questionnaires and surveys
				2. Data analysis
				  • Performance reviews
				  • Root cause analysis
				3. Inspection
				4. Testing/product evaluations
					1. Quality control measurements
					2. Verified deliverables
					3. Work performance information
					4. Change requests
					5. Project management plan updates
					  • Quality management plan
					6. Project documents updates

			7. Organizational process assets	5. Data representation • Cause-and-effect diagrams • Control charts • Histogram • Scatter diagrams 6. Meetings	• Issue log • Lessons learned register • Risk register • Test and evaluation documents

PROJECT RESOURCE MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT
Plan Resource management	Estimate, acquire, manage, and utilize physical and team resources.	Planning	1. Project charter 2. Project management plan • Quality management plan • Scope baseline .3 Project documents • Project schedule • Requirements documentation • Risk register • Stakeholder register 4. Enterprise environmental Factors 5. Organizational process assets	Expert judgment Data representation • Hierarchical charts • Responsibility assignment matrix • Text-oriented formats Organizational theory Meetings	Resource management plan Team charter Project documents updates • Assumption log • Risk register
Estimate Activity Resources	Estimating team resources and the type and quantities of material, equipment, and supplies necessary to perform project work.	Planning	1. Project management plan • Resource management plan • Scope baseline 2. Project documents • Activity attributes • Activity list • Assumption log • Cost estimates • Resource calendars • Risk register 3. Enterprise environmental factors 4. Organizational process assets	1. Expert judgment 2. Bottom-up estimating 3. Analogous estimating 4. Parametric estimating 5. Data analysis • Alternatives analysis 6. Project management information system 7. Meetings	1. Resource requirements 2. Basis of estimates 3. Resource breakdown structure 4. Project documents updates • Activity attributes • Assumption log • Lessons learned register

Acquire Resources	Obtaining required project resources.	Executing	1. Project management plan • Resource management plan • Procurement management plan • Cost baseline 2. Project documents • Project schedule • Resource calendars • Resource requirements • Stakeholder register 3. Enterprise environmental factors 4. Organizational process assets	1. Decision making • Multicriteria decision analysis 2. Interpersonal and team skills • Negotiation 3. Pre-assignment 4. Virtual teams	1. Physical resource assignments 2. Project team assignments 3. Resource calendars 4. Change requests 5. Project management plan updates • Resource management plan • Cost baseline 6. Project documents updates • Lessons learned register • Project schedule • Resource breakdown structure • Resource requirements • Risk register • Stakeholder register 7. Enterprise environmental factors updates 8. Organizational process assets updates
Develop Team	Develop individual or group skills to enhance project performance.	Executing	1. Project management plan • Resource management plan 2. Project documents • Lessons learned register • Project schedule • project team assignments • Resource calendars • Team charter 3. Enterprise environmental factors 4. Organizational process assets	1. Colocation 2. Virtual teams 3. Communication technology 4. Interpersonal and team skills • Conflict management • Influencing • Motivation • Negotiation • Team building 5. Recognition and rewards 6. Training 7. Individual and team assessments	1. Team performance assessments 2. Change requests 3. Project management plan updates • Resource management plan 4. Project documents updates • Lessons learned register • Project schedule • Project team

				8. Meetings	assignments • Resource calendars • Team charter 5. Enterprise environmental factors updates 6. Organizational process assets update
Manage Project Team	Track team performance, providing feedback, resolving issues, managing changes to optimize project performance.	Executing	1. Project management plan • Resource management plan 2. Project documents • Issue log • Lessons learned register • Project team assignments • Team charter 3. Work performance reports 4. Team performance assessments 5. Enterprise environmental factors 6. Organizational process assets	1. Interpersonal and team skills • Conflict management • Decision making • Emotional intelligence • Influencing • Leadership 2. Project management information system	1. Change requests 2. Project management plan updates • Resource management plan • Schedule baseline • Cost baseline 3. Project documents updates • Issue log • Lessons learned register • Project team assignments 4. Enterprise environmental factors updates
Control Resource	Ensuring that the physical resources assigned and allocated to the project are available as planned, as well as monitoring the planned versus actual use of resources, and performing corrective action as necessary.	Monitoring and Controlling	1. Project management plan • Resource management plan 2. Project documents • Issue log • Lessons learned register • Physical resource assignments • Project schedule • Resource breakdown structure • Resource requirements • Risk register 3. Work performance data 4. Agreements 5. Organizational process assets	1. Data analysis • Alternatives analysis • Cost-benefit analysis • Performance reviews • Trend analysis 2. Problem solving 3. Interpersonal and team skills • Negotiation • Influencing 4. Project management information system	1. Work performance information 2. Change requests 3. Project management plan updates • Resource management plan • Schedule baseline • Cost baseline 4. Project documents updates • Assumption log • Issue log • Lessons learned register

					• Physical resource assignments • Resource breakdown structure • Risk register

PROJECT COMMUNICATION MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT

Plan Communication	Developing an appropriate approach and plan for project Communications based on stakeholder's information needs and requirements, and available organizational assets	Planning	1. Project charter
			2. Project management plan
			  • Resource management plan
			  • Stakeholder engagement plan
			3. Project documents
			  • Requirements documentation
			  • Stakeholder register
			4. Enterprise environmental factors
			5. Organizational process assets
				1. Expert judgment
				2. Communication requirements analysis
				3. Communication technology
				4. Communication models
				5. Communication methods
				6. Interpersonal and team skills
				  • Communication styles assessment
				  • Political awareness
				  • Cultural awareness
				7. Data representation
				  • Stakeholder engagement assessment matrix
				8. Meetings
					1. Communications management plan
					2. Project management plan updates
					  • Stakeholder engagement plan
					3. Project documents updates
					  • Project schedule
					  • Stakeholder register

Manage Communications	Process of creating, collecting, distributing, storing, retrieving, and the ultimate disposition of project information in accordance with the communications management plan	Executing	1. Project management plan
			  • Resource management plan
			  • Communications management plan
			  • Stakeholder engagement plan
			2. Project documents
			  • Change log
			  • Issue log
			  • Lessons learned register
			  • Quality report
				1. Communication technology
				2. Communication methods
				3. Communication skills
				  • Communication competence
				  • Feedback
				  • Nonverbal
				  • Presentations
				4. Project management information system
				5. Project reporting
				6. Interpersonal and team skills
				  • Active listening
					1. Project communications
					2. Project management plan updates
					  • Communications management plan
					  • Stakeholder engagement plan
					3. Project documents updates
					  • Issue log
					  • Lessons learned register

			• Risk report • Stakeholder register 3. Work performance reports 4. Enterprise environmental factors 5. Organizational process assets	• Conflict management • Cultural awareness • Meeting management • Networking • Political awareness 7. Meetings	• Project schedule • Risk register • Stakeholder register 4. Organizational process assets updates
Monitor Communications	Monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders are met. The key benefit of this process is that it ensures an optimal information flow among all communication participants	Monitoring and Controlling	1. Project management plan • Resource management plan • Communications management plan • Stakeholder engagement plan 2. Project documents • Issue log • Lessons learned register • Project communications 3. Work performance data 4. Enterprise environmental factors 5. Organizational process assets	1. Expert judgment 2. Project management information system 3. Data analysis • Stakeholder engagement assessment matrix 4. Interpersonal and team skills • Observation/conversation 5. Meetings	1. Work performance information 2. Change requests 3. Project management plan updates • Communications management plan • Stakeholder engagement plan 4. Project documents updates • Issue log • Lessons learned register • Stakeholder register

PROJECT RISK MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT
Plan Risk Management	Determine approach and plan risk mgt activities	Planning	1. Project charter 2. Project management plan • All components 3. Project documents • Stakeholder register 4. Enterprise environmental factors 5. Organizational process assets	1. Expert judgment 2. Data analysis • Stakeholder analysis 3. Meetings	1. Risk management plan
Identify Risks	Determine and document characteristics of	Planning	1. Project management plan • Requirements management plan	1. Expert judgment 2. Data gathering • Brainstorming	1. Risk register 2. Risk report 3. Project documents

	potential risks		• Schedule management plan
			• Cost management plan
			• Quality management plan
			• Resource management plan
			• Risk management plan
			• Scope baseline
			• Schedule baseline
			• Cost baseline
			2. Project documents
			  • Assumption log
			  • Cost estimates
			  • Duration estimates
			  • Issue log
			  • Lessons learned register
			  • Requirements documentation
			  • Resource requirements
			  • Stakeholder register
			3. Agreements
			4. Procurement documentation
			5. Enterprise environmental factors
			6. Organizational process assets
				• Checklists
				• Interviews
				3. Data analysis
				  • Root cause analysis
				  • Assumption and constraint analysis
				  • SWOT analysis
				  • Document analysis
				4. Interpersonal and team skills
				5. Facilitation
				6. Prompt lists
				7. Meetings
					updates
					• Assumption log
					• Issue log
					• Lessons learned register

Perform Qualitative Risk Analysis	Conduct qualitative analysis of risks and conditions and prioritize their effects	Planning	1. Project management plan
			  • Risk management plan
			2. Project documents
			  • Assumption log
			  • Risk register
			  • Stakeholder register
			3. Enterprise environmental factors
			4. Organizational process assets
				1. Expert judgment
				2. Data gathering
				  • Interviews
				3. Data analysis
				  • Risk data quality assessment
				  • Risk probability and impact assessment
				  • Assessment of other risk parameters
				4. Interpersonal and team skills
				  • Facilitation
				5. Risk categorization
				6. Data representation
				  • Probability and impact
					1. Project documents updates
					• Assumption log
					• Issue log
					• Risk register
					• Risk report

				matrix • Hierarchical charts 1. Meetings	

Perform Quantitative Risk Analysis	Measure probability and consequences of risks and estimate implications for project objectives	Planning	1. Project management plan
			  • Risk management plan
			  • Scope baseline
			  • Schedule baseline
			  • Cost baseline
			2. Project documents
			  • Assumption log
			  • Basis of estimates
			  • Cost estimates
			  • Cost forecasts
			  • Duration estimates
			  • Milestone list
			  • Resource requirements
			  • Risk register
			  • Risk report
			  • Schedule forecasts
			3. Enterprise environmental factors
			4. Organizational process assets
				1. Expert judgment
				2. Data gathering
				  • Interviews
				3. Interpersonal and team skills
				  • Facilitation
				4. Representations of uncertainty
				5. Data analysis
				  • Simulations
				  • Sensitivity analysis
				  • Decision tree analysis
				  • Influence diagrams
					1. Project documents updates
					  • Risk Report

Plan Risk Responses	Develop options and actions to enhance opportunities and reduce threats to the project's objectives	Planning	1. Project management plan
			  • Resource management plan
			  • Risk management plan
			  • Cost baseline
			2. Project documents
			  • Lessons learned register
			  • Project schedule
			  • Project team assignments
			  • Resource calendars
			  • Risk register
			  • Risk report
			  • Stakeholder register
			3. Enterprise environmental factors
			4. Organizational process assets
				1. Expert judgment
				2. Data gathering
				  • Interviews
				3. Interpersonal and team skills
				  • Facilitation
				4. Strategies for threats
				5. Strategies for opportunities
				6. Contingent response strategies
				7. Strategies for overall project risk
				8. Data analysis
				  • Alternatives analysis
				  • Cost-benefit analysis
				9. Decision making
				  • Multicriteria decision analysis
					1. Change requests
					2. Project management plan updates
					  • Schedule management plan
					  • Cost management plan
					  • Quality management plan
					  • Resource management plan
					  • Procurement management plan
					  • Scope baseline
					  • Schedule baseline
					  • Cost baseline
					3. Project documents

					updates • Assumption log • Cost forecasts • Lessons learned register • Project schedule • Project team assignments • Risk register • Risk report

Implement Risk Responses	Implementing agreed-upon risk response plans.	Executing	1. Project management plan
			  • Risk management plan
			2. Project documents
			  • Lessons learned register
			  • Risk register
			  • Risk report
			3. Organizational process assets
				1. Expert judgment
				2. Interpersonal and team skills
				  • Influencing
				3. Project management information system
					1. Change requests
					2. Project documents updates
					  • Issue log
					  • Lessons learned register
					  • Project team assignments
					  • Risk register
					  • Risk report

Monitor Risk	Monitor residual risks, identifying new risks, executing risk response plans and evaluating their effectiveness.	Monitoring and Control	1. Project management plan
			  • Risk management plan
			2. Project documents
			  • Issue log
			  • Lessons learned register
			  • Risk register
			  • Risk report
			  • Work performance data
			  • Work performance reports
				1. Data analysis
				  • Technical performance analysis
				  • Reserve analysis
				2. Audits
				3. Meetings
					1. Work performance information
					2. Change requests
					3. Project management plan updates
					  • Any component
					4. Project documents updates
					  • Assumption log
					  • Issue log
					  • Lessons learned register
					  • Risk register
					  • Risk report
					5. Organizational process assets updates

PROJECT PROCUREMENT MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT

Plan Procurement Management	Determine what, how and when to procure. Prepare procurement documents to support vendor selection and develop the procurement SOW.	Planning	1. Project charter
			2. Business documents
			  • Business case
			  • Benefits management plan
			3. Project management plan
			  • Scope management plan
			  • Quality management plan
			  • Resource management plan
			  • Scope baseline
			4. Project documents
			  • Milestone list
			  • Project team assignments
			  • Requirements documentation
			  • Requirements traceability matrix
			  • Resource requirements
			  • Risk register
			  • Stakeholder register
			5. Enterprise environmental factors
			6. Organizational process assets
				1. Expert judgment
				2. Data gathering
				  • Market research
				3. Data analysis
				  • Make-or-buy analysis
				4. Source selection analysis
				5. Meetings
					1. Procurement management plan
					2. Procurement strategy
					3. Bid documents
					4. Procurement statement of work
					5. Source selection criteria
					6. Make-or-buy decisions
					7. Independent cost estimates
					8. Change requests
					9. Project documents updates
					  • Lessons learned register
					  • Milestone list
					  • Requirements documentation
					  • Requirements traceability matrix
					  • Risk register
					  • Stakeholder register
					10. Organizational process assets updates

Conduct Procurement	Select from potential sellers	Executing	1. Project management plan
			  • Scope management plan
			  • Requirements management plan
			  • Communications management plan
			  • Risk management plan
				1. Expert judgment
				2. Advertising
				3. Bidder conferences
				4. Data analysis
				  • Proposal evaluation
				5. Interpersonal and team skills
				  • Negotiation
					1. Selected sellers
					2. Agreements
					3. Change requests
					4. Project management plan updates
					  • Requirements management plan

			• Procurement management plan
			• Configuration management plan
			• Cost baseline
			2. Project documents
			  • Lessons learned register
			  • Project schedule
			  • Requirements documentation
			  • Risk register
			  • Stakeholder register
			3. Procurement documentation
			4. Seller proposals
			5. Enterprise environmental factors
			6. Organizational process assets
					• Quality management plan
					• Communications management plan
					• Risk management plan
					• Procurement management plan
					• Scope baseline
					• Schedule baseline
					• Cost baseline
					5. Project documents updates
					  • Lessons learned register
					  • Requirements documentation
					  • Requirements traceability matrix
					  • Resource calendars
					  • Risk register
					  • Stakeholder register
					6. Organizational process assets update

Control Procurement	Manage seller relationship, review seller performance and manage contract related changes	Monitoring and Controlling	1. Project management plan
			  • Requirements management plan
			  • Risk management plan
			  • Procurement management plan
			  • Change management plan
			  • Schedule baseline
			2. Project documents
			  • Assumption log
			  • Lessons learned register
			  • Milestone list
			  • Quality reports
			  • Requirements documentation
			  • Requirements traceability
				1. Expert judgment
				2. Claims administration
				3. Data analysis
				  • Performance reviews
				  • Earned value analysis
				  • Trend analysis
				4. Inspection
				5. Audits
					1. Closed procurements
					2. Work performance information
					3. Procurement documentation updates
					4. Change requests
					5. Project management plan updates
					  • Risk management plan
					  • Procurement management plan
					  • Schedule baseline
					  • Cost baseline
					6. Project documents updates
					  • Lessons learned register

			matrix • Risk register • Stakeholder register 3. Agreements 4. Procurement documentation 5. Approved change requests 6. Work performance data 7. Enterprise environmental factors 8. Organizational process assets		• Resource requirements • Requirements traceability matrix • Risk register • Stakeholder register 7. Organizational process assets updates

PROJECT STAKEHOLDER MANAGEMENT

PROCESS	DESCRIPTION	GROUP	INPUT	TOOLS & TECHNIQUES	OUTPUT

Identify Stakeholders	Documenting stakeholders, interest, power and expectations	Initiating	1. Project charter
			2. Business documents
			   • Business case
			   • Benefits management plan
			3. Project management plan
			   • Communications management plan
			   • Stakeholder engagement plan
			4. Project documents
			   • Change log
			   • Issue log
			   • Requirements documentation
			5. Agreements
			6. Enterprise environmental factors
			7. Organizational process assets
				1. Expert judgment
				2. Data gathering
				   • Questionnaires and surveys
				   • Brainstorming
				3. Data analysis
				   • Stakeholder analysis
				   • Document analysis
				4. Data representation
				   • Stakeholder mapping/ representation
				5. Meetings
					1. Stakeholder register
					2. Change requests
					3. Project management plan updates
					   • Requirements management plan
					   • Communications management plan
					   • Risk management plan
					   • Stakeholder engagement plan
					4. Project documents updates
					   • Assumption log
					   • Issue log
					   • Risk register

Plan Stakeholder Management	Strategies to effectively engage stakeholders	Planning	1. Project charter 2. Project management plan • Resource management	1. Expert judgment 2. Data gathering 3. Benchmarking	8. Stakeholder engagement plan

			Inputs	Tools & Techniques	Outputs
	throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success		plan • Communications management plan • Risk management plan 3. Project documents • Assumption log • Change log • Issue log • Project schedule • Risk register • Stakeholder register 4. Agreements 5. Enterprise environmental factors 6. Organizational process assets	4. Data analysis • Assumption and constraint analysis • Root cause analysis 5. Decision making • Prioritization/ranking 6. Data representation • Mind mapping • Stakeholder engagement assessment matrix 7. Meetings	
Manage Stakeholder Engagement	Issue management with stakeholders	Executing	1. Project management plan • Communications management plan • Risk management plan • Stakeholder engagement plan • Change management plan 2. Project documents • Change log • Issue log • Lessons learned register • Stakeholder register 3. Enterprise environmental factors 4. Organizational process assets	1. Expert judgment 2. Communication skills • Feedback 3. Interpersonal and team skills • Conflict management • Cultural awareness • Negotiation • Observation/conversation • Political awareness 4. Ground rules 5. Meetings	1. Change requests 2. Project management plan updates • Communications management plan • Stakeholder engagement plan 3. Project documents updates • Change log • Issue log • Lessons learned register • Stakeholder register
Monitor Stakeholder Engagement	Monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders	Monitoring and Controlling	1. Project management plan • Resource management plan • Communications management plan • Stakeholder engagement plan	1. Data analysis • Alternatives analysis • Root cause analysis • Stakeholder analysis 2. Decision making • Multicriteria decision analysis • Voting	1. Work performance information 2. Change requests 3. Project management plan updates • Resource management plan

			2. Project documents • Issue log • Lessons learned register • Project communications • Risk register • Stakeholder register 3. Work performance data 4. Enterprise environmental factors 5. Organizational process assets	3. Data representation • Stakeholder engagement assessment matrix 4. Communication skills • Feedback • Presentations 5. Interpersonal and team skills • Active listening • Cultural awareness • Leadership • Networking • Political awareness 6. Meetings	• Communications management plan • Stakeholder engagement plan 4. Project documents updates • Issue log • Lessons learned register • Risk register • Stakeholder register

Contact!

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