

Table 1-4. Project Management Process Group and Knowledge Area Mapping

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement	

Project Integration Management Overview

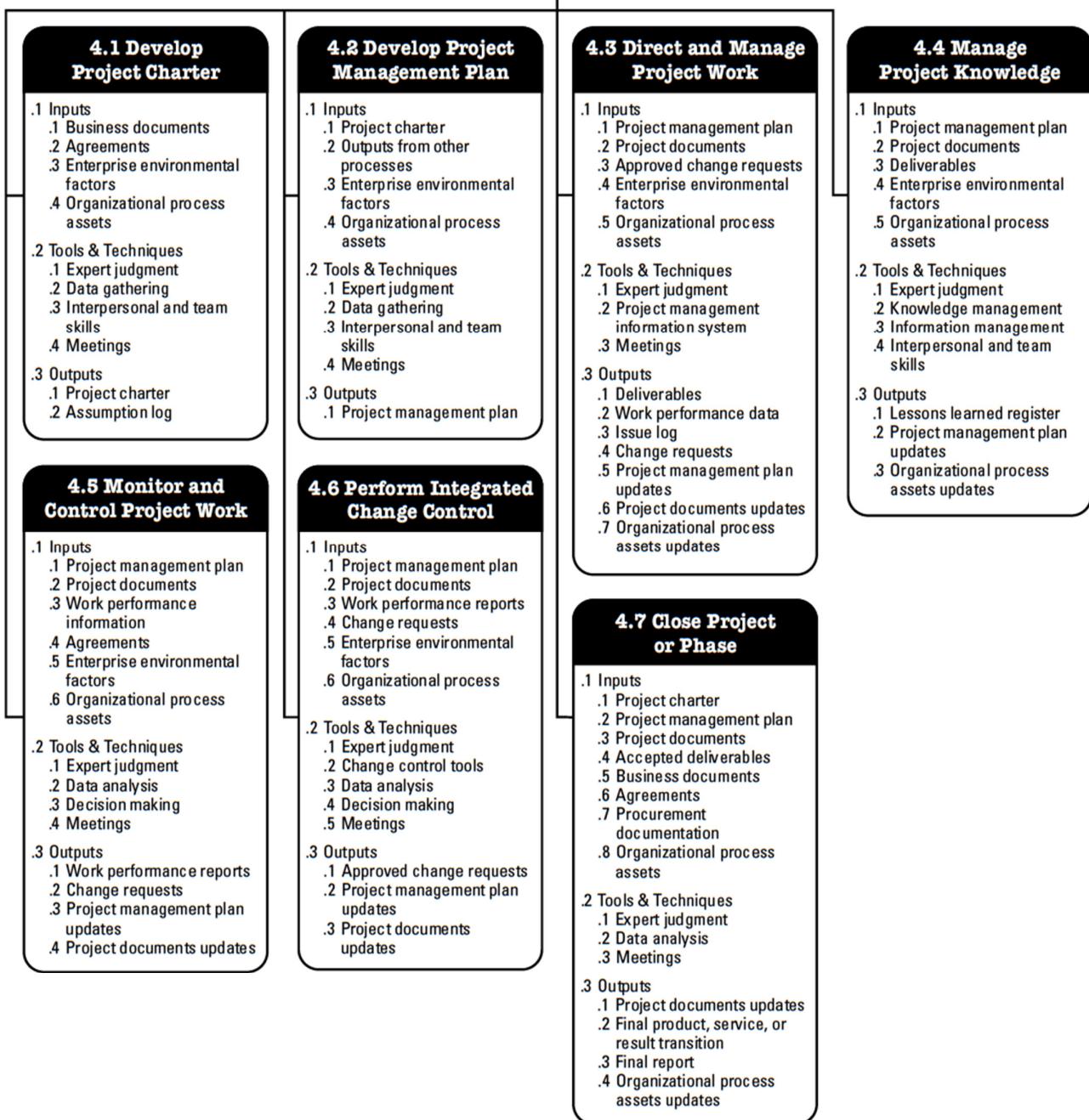


Figure 4-1. Project Integration Management Overview

Project Scope Management Overview

5.1 Plan Scope Management

- .1 Inputs
 - .1 Project charter
 - .2 Project management plan
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data analysis
 - .3 Meetings
- .3 Outputs
 - .1 Scope management plan
 - .2 Requirements management plan

5.2 Collect Requirements

- .1 Inputs
 - .1 Project charter
 - .2 Project management plan
 - .3 Project documents
 - .4 Business documents
 - .5 Agreements
 - .6 Enterprise environmental factors
 - .7 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data gathering
 - .3 Data analysis
 - .4 Decision making
 - .5 Data representation
 - .6 Interpersonal and team skills
 - .7 Context diagram
 - .8 Prototypes
- .3 Outputs
 - .1 Requirements documentation
 - .2 Requirements traceability matrix

5.4 Create WBS

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Decomposition
- .3 Outputs
 - .1 Scope baseline
 - .2 Project documents updates

5.5 Validate Scope

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Verified deliverables
 - .4 Work performance data
- .2 Tools & Techniques
 - .1 Inspection
 - .2 Decision making
- .3 Outputs
 - .1 Accepted deliverables
 - .2 Work performance information
 - .3 Change requests
 - .4 Project documents updates

5.3 Define Scope

- .1 Inputs
 - .1 Project charter
 - .2 Project management plan
 - .3 Project documents
 - .4 Enterprise environmental factors
 - .5 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data analysis
 - .3 Decision making
 - .4 Interpersonal and team skills
 - .5 Product analysis
- .3 Outputs
 - .1 Project scope statement
 - .2 Project documents updates

5.6 Control Scope

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Work performance data
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Data analysis
- .3 Outputs
 - .1 Work performance information
 - .2 Change requests
 - .3 Project management plan updates
 - .4 Project documents updates

Project Schedule Management Overview

6.1 Plan Schedule Management

- .1 Inputs
 - .1 Project charter
 - .2 Project management plan
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data analysis
 - .3 Meetings
- .3 Outputs
 - .1 Schedule management plan

6.2 Define Activities

- .1 Inputs
 - .1 Project management plan
 - .2 Enterprise environmental factors
 - .3 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Decomposition
 - .3 Rolling wave planning
 - .4 Meetings
- .3 Outputs
 - .1 Activity list
 - .2 Activity attributes
 - .3 Milestone list
 - .4 Change requests
 - .5 Project management plan updates

6.3 Sequence Activities

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Precedence diagramming method
 - .2 Dependency determination and integration
 - .3 Leads and lags
 - .4 Project management information system
- .3 Outputs
 - .1 Project schedule network diagrams
 - .2 Project documents updates

6.4 Estimate Activity Durations

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Analogous estimating
 - .3 Parametric estimating
 - .4 Three-point estimating
 - .5 Bottom-up estimating
 - .6 Data analysis
 - .7 Decision making
 - .8 Meetings
- .3 Outputs
 - .1 Duration estimates
 - .2 Basis of estimates
 - .3 Project documents updates

6.5 Develop Schedule

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Agreements
 - .4 Enterprise environmental factors
 - .5 Organizational process assets
- .2 Tools & Techniques
 - .1 Schedule network analysis
 - .2 Critical path method
 - .3 Resource optimization
 - .4 Data analysis
 - .5 Leads and lags
 - .6 Schedule compression
 - .7 Project management information system
 - .8 Agile release planning
- .3 Outputs
 - .1 Schedule baseline
 - .2 Project schedule
 - .3 Schedule data
 - .4 Project calendars
 - .5 Change requests
 - .6 Project management plan updates
 - .7 Project documents updates

6.6 Control Schedule

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Work performance data
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Data analysis
 - .2 Critical path method
 - .3 Project management information system
 - .4 Resource optimization
 - .5 Leads and lags
 - .6 Schedule compression
- .3 Outputs
 - .1 Work performance information
 - .2 Schedule forecasts
 - .3 Change requests
 - .4 Project management plan updates
 - .5 Project documents updates

Project Cost Management Overview

7.1 Plan Cost Management

- .1 Inputs
 - .1 Project charter
 - .2 Project management plan
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data analysis
 - .3 Meetings
- .3 Outputs
 - .1 Cost management plan

7.2 Estimate Costs

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Analogous estimating
 - .3 Parametric estimating
 - .4 Bottom-up estimating
 - .5 Three-point estimating
 - .6 Data analysis
 - .7 Project management information system
 - .8 Decision making
- .3 Outputs
 - .1 Cost estimates
 - .2 Basis of estimates
 - .3 Project documents updates

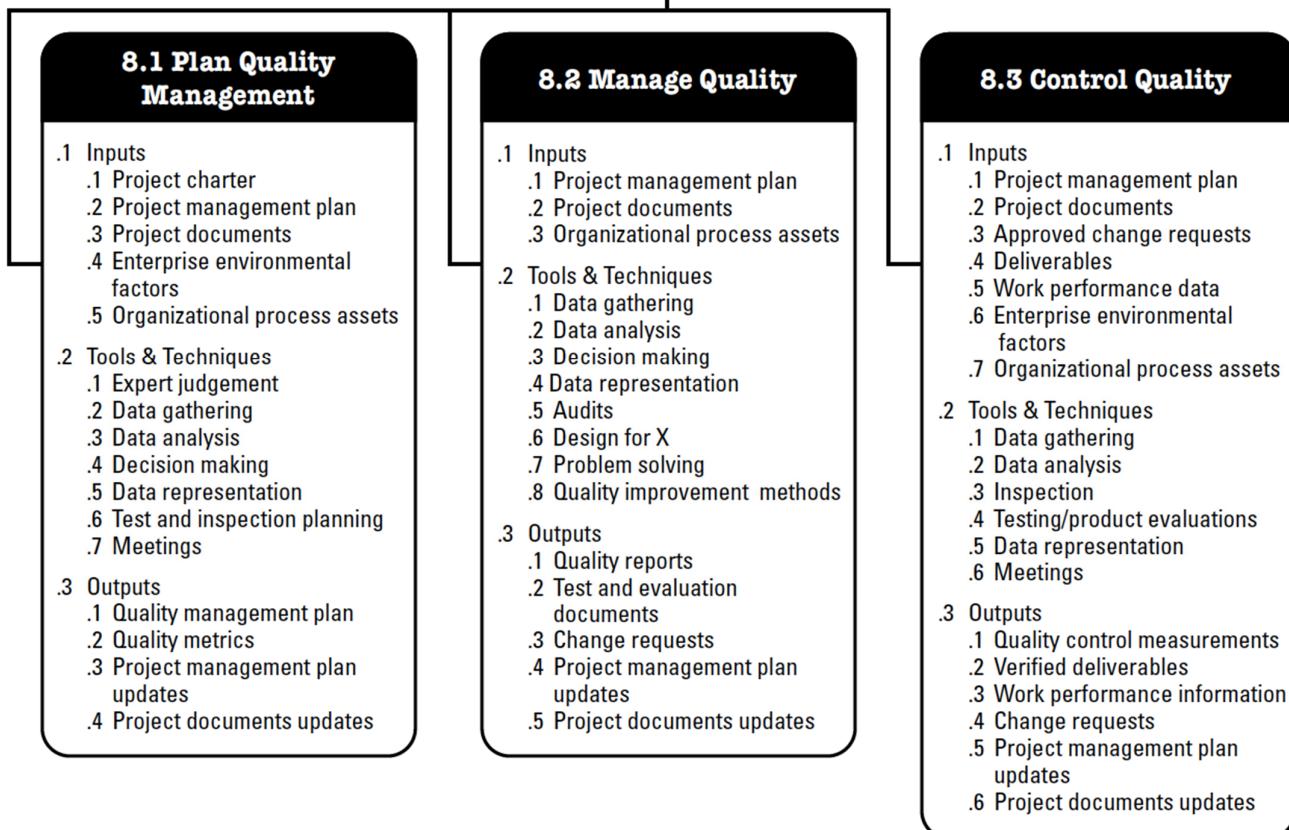
7.3 Determine Budget

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Business documents
 - .4 Agreements
 - .5 Enterprise environmental factors
 - .6 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Cost aggregation
 - .3 Data analysis
 - .4 Historical information review
 - .5 Funding limit reconciliation
 - .6 Financing
- .3 Outputs
 - .1 Cost baseline
 - .2 Project funding requirements
 - .3 Project documents updates

7.4 Control Costs

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Project funding requirements
 - .4 Work performance data
 - .5 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data analysis
 - .3 To-complete performance index
 - .4 Project management information system
- .3 Outputs
 - .1 Work performance information
 - .2 Cost forecasts
 - .3 Change requests
 - .4 Project management plan updates
 - .5 Project documents updates

Project Quality Management Overview



Project Resource Management Overview

9.1 Plan Resource Management

- .1 Inputs
 - .1 Project charter
 - .2 Project management plan
 - .3 Project documents
 - .4 Enterprise environmental factors
 - .5 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data representation
 - .3 Organizational theory
 - .4 Meetings
- .3 Outputs
 - .1 Resource management plan
 - .2 Team charter
 - .3 Project documents updates

9.2 Estimate Activity Resources

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Bottom-up estimating
 - .3 Analogous estimating
 - .4 Parametric estimating
 - .5 Data analysis
 - .6 Project management information system
 - .7 Meetings
- .3 Outputs
 - .1 Resource requirements
 - .2 Basis of estimates
 - .3 Resource breakdown structure
 - .4 Project documents updates

9.3 Acquire Resources

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Decision making
 - .2 Interpersonal and team skills
 - .3 Pre-assignment
 - .4 Virtual teams
- .3 Outputs
 - .1 Physical resource assignments
 - .2 Project team assignments
 - .3 Resource calendars
 - .4 Change requests
 - .5 Project management plan updates
 - .6 Project documents updates
 - .7 Enterprise environmental factors updates
 - .8 Organizational process assets updates

9.4 Develop Team

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Enterprise environmental factors
 - .4 Organizational process assets
- .2 Tools & Techniques
 - .1 Colocation
 - .2 Virtual teams
 - .3 Communication technology
 - .4 Interpersonal and team skills
 - .5 Recognition and rewards
 - .6 Training
 - .7 Individual and team assessments
 - .8 Meetings
- .3 Outputs
 - .1 Team performance assessments
 - .2 Change requests
 - .3 Project management plan updates
 - .4 Project documents updates
 - .5 Enterprise environmental factors updates
 - .6 Organizational process assets updates

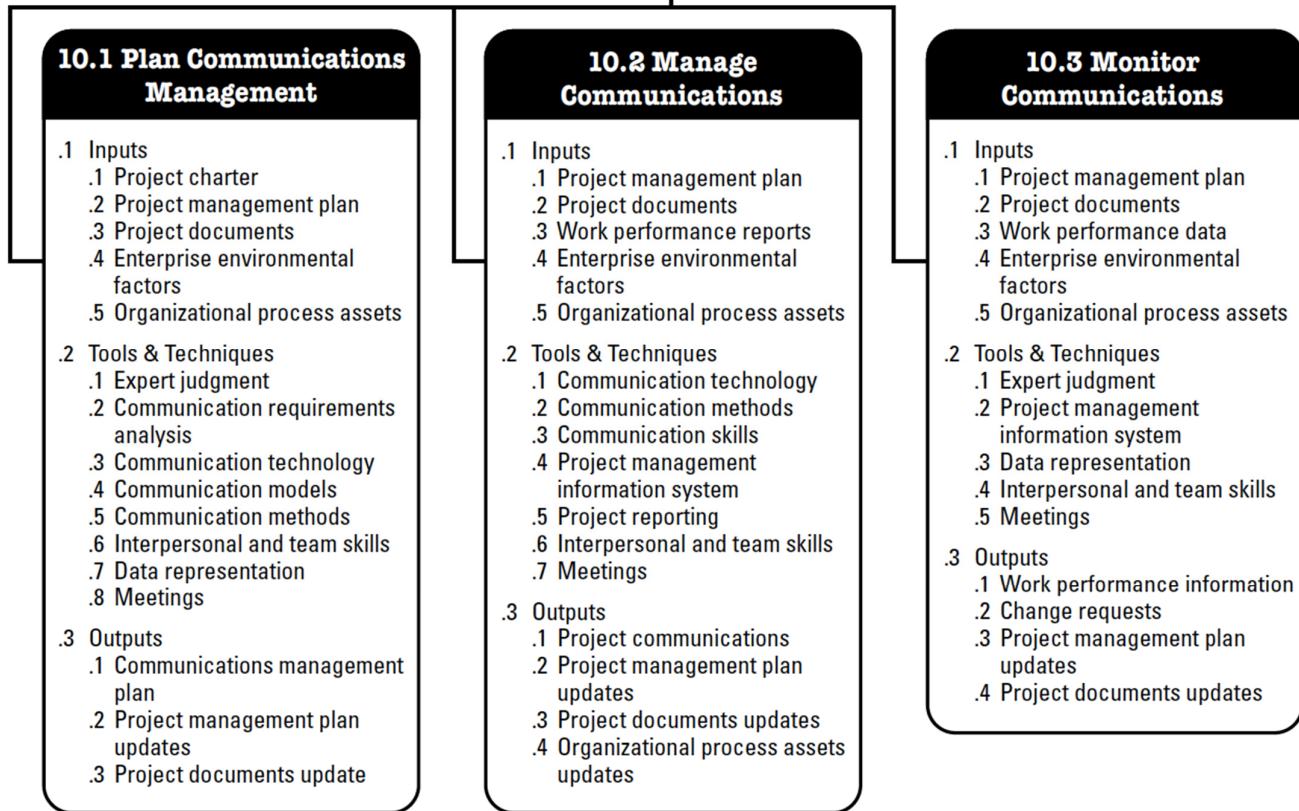
9.5 Manage Team

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Work performance reports
 - .4 Team performance assessments
 - .5 Enterprise environmental factors
 - .6 Organizational process assets
- .2 Tools & Techniques
 - .1 Interpersonal and team skills
 - .2 Project management information system
- .3 Outputs
 - .1 Change requests
 - .2 Project management plan updates
 - .3 Project documents updates
 - .4 Enterprise environmental factors updates

9.6 Control Resources

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Work performance data
 - .4 Agreements
 - .5 Organizational process assets
- .2 Tools & Techniques
 - .1 Data analysis
 - .2 Problem solving
 - .3 Interpersonal and team skills
 - .4 Project management information system
- .3 Outputs
 - .1 Work performance information
 - .2 Change requests
 - .3 Project management plan updates
 - .4 Project documents updates

Project Communications Management Overview



Project Risk Management Overview

<p>11.1 Plan Risk Management</p> <ul style="list-style-type: none"> .1 Inputs <ul style="list-style-type: none"> .1 Project charter .2 Project management plan .3 Project documents .4 Enterprise environmental factors .5 Organizational process assets .2 Tools & Techniques <ul style="list-style-type: none"> .1 Expert judgment .2 Data analysis .3 Meetings .3 Outputs <ul style="list-style-type: none"> .1 Risk management plan 	<p>11.2 Identify Risks</p> <ul style="list-style-type: none"> .1 Inputs <ul style="list-style-type: none"> .1 Project management plan .2 Project documents .3 Agreements .4 Procurement documentation .5 Enterprise environmental factors .6 Organizational process assets .2 Tools & Techniques <ul style="list-style-type: none"> .1 Expert judgment .2 Data gathering .3 Data analysis .4 Interpersonal and team skills .5 Prompt lists .6 Meetings .3 Outputs <ul style="list-style-type: none"> .1 Risk register .2 Risk report .3 Project documents updates 	<p>11.3 Perform Qualitative Risk Analysis</p> <ul style="list-style-type: none"> .1 Inputs <ul style="list-style-type: none"> .1 Project management plan .2 Project documents .3 Enterprise environmental factors .4 Organizational process assets .2 Tools & Techniques <ul style="list-style-type: none"> .1 Expert judgment .2 Data gathering .3 Data analysis .4 Interpersonal and team skills .5 Risk categorization .6 Data representation .7 Meetings .3 Outputs <ul style="list-style-type: none"> .1 Project documents updates 	<p>11.4 Perform Quantitative Risk Analysis</p> <ul style="list-style-type: none"> .1 Inputs <ul style="list-style-type: none"> .1 Project management plan .2 Project documents .3 Enterprise environmental factors .4 Organizational process assets .2 Tools & Techniques <ul style="list-style-type: none"> .1 Expert judgment .2 Data gathering .3 Interpersonal and team skills .4 Representations of uncertainty .5 Data analysis .3 Outputs <ul style="list-style-type: none"> .1 Project documents updates
<p>11.5 Plan Risk Responses</p> <ul style="list-style-type: none"> .1 Inputs <ul style="list-style-type: none"> .1 Project management plan .2 Project documents .3 Enterprise environmental factors .4 Organizational process assets .2 Tools & Techniques <ul style="list-style-type: none"> .1 Expert judgment .2 Data gathering .3 Interpersonal and team skills .4 Strategies for threats .5 Strategies for opportunities .6 Contingent response strategies .7 Strategies for overall project risk .8 Data analysis .9 Decision making .3 Outputs <ul style="list-style-type: none"> .1 Change requests .2 Project management plan updates .3 Project documents updates 	<p>11.6 Implement Risk Responses</p> <ul style="list-style-type: none"> .1 Inputs <ul style="list-style-type: none"> .1 Project management plan .2 Project documents .3 Organizational process assets .2 Tools & Techniques <ul style="list-style-type: none"> .1 Expert judgment .2 Interpersonal and team skills .3 Project management information system .3 Outputs <ul style="list-style-type: none"> .1 Change requests .2 Project documents updates 	<p>11.7 Monitor Risks</p> <ul style="list-style-type: none"> .1 Inputs <ul style="list-style-type: none"> .1 Project management plan .2 Project documents .3 Work performance data .4 Work performance reports .2 Tools & Techniques <ul style="list-style-type: none"> .1 Data analysis .2 Audits .3 Meetings .3 Outputs <ul style="list-style-type: none"> .1 Work performance information .2 Change requests .3 Project management plan updates .4 Project documents updates .5 Organizational process assets updates 	

Project Procurement Management Overview

12.1 Plan Procurement Management

- .1 Inputs
 - .1 Project charter
 - .2 Business documents
 - .3 Project management plan
 - .4 Project documents
 - .5 Enterprise environmental factors
 - .6 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Data gathering
 - .3 Data analysis
 - .4 Source selection analysis
 - .5 Meetings
- .3 Outputs
 - .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
 - .10 Organizational process assets updates

12.2 Conduct Procurements

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Procurement documentation
 - .4 Seller proposals
 - .5 Enterprise environmental factors
 - .6 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Advertising
 - .3 Bidder conferences
 - .4 Data analysis
 - .5 Interpersonal and team skills
- .3 Outputs
 - .1 Selected sellers
 - .2 Agreements
 - .3 Change requests
 - .4 Project management plan updates
 - .5 Project documents updates
 - .6 Organizational process assets updates

12.3 Control Procurements

- .1 Inputs
 - .1 Project management plan
 - .2 Project documents
 - .3 Agreements
 - .4 Procurement documentation
 - .5 Approved change requests
 - .6 Work performance data
 - .7 Enterprise environmental factors
 - .8 Organizational process assets
- .2 Tools & Techniques
 - .1 Expert judgment
 - .2 Claims administration
 - .3 Data analysis
 - .4 Inspection
 - .5 Audits
- .3 Outputs
 - .1 Closed procurements
 - .2 Work performance information
 - .3 Procurement documentation updates
 - .4 Change requests
 - .5 Project management plan updates
 - .6 Project documents updates
 - .7 Organizational process assets updates

Project Stakeholder Management Overview

13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement
<ul style="list-style-type: none">.1 Inputs<ul style="list-style-type: none">.1 Project charter.2 Business documents.3 Project management plan.4 Project documents.5 Agreements.6 Enterprise environmental factors.7 Organizational process assets.2 Tools & Techniques<ul style="list-style-type: none">.1 Expert judgment.2 Data gathering.3 Data analysis.4 Data representation.5 Meetings.3 Outputs<ul style="list-style-type: none">.1 Stakeholder register.2 Change requests.3 Project management plan updates.4 Project documents updates	<ul style="list-style-type: none">.1 Inputs<ul style="list-style-type: none">.1 Project charter.2 Project management plan.3 Project documents.4 Agreements.5 Enterprise environmental factors.6 Organizational process assets.2 Tools & Techniques<ul style="list-style-type: none">.1 Expert judgment.2 Data gathering.3 Data analysis.4 Decision making.5 Data representation.6 Meetings.3 Outputs<ul style="list-style-type: none">.1 Stakeholder engagement plan	<ul style="list-style-type: none">.1 Inputs<ul style="list-style-type: none">.1 Project management plan.2 Project documents.3 Enterprise environmental factors.4 Organizational process assets.2 Tools & Techniques<ul style="list-style-type: none">.1 Expert judgment.2 Communication skills.3 Interpersonal and team skills.4 Ground rules.5 Meetings.3 Outputs<ul style="list-style-type: none">.1 Change requests.2 Project management plan updates.3 Project documents updates	<ul style="list-style-type: none">.1 Inputs<ul style="list-style-type: none">.1 Project management plan.2 Project documents.3 Work performance data.4 Enterprise environmental factors.5 Organizational process assets.2 Tools & Techniques<ul style="list-style-type: none">.1 Data analysis.2 Decision making.3 Data representation.4 Communication skills.5 Interpersonal and team skills.6 Meetings.3 Outputs<ul style="list-style-type: none">.1 Work performance information.2 Change requests.3 Project management plan updates.4 Project documents updates

