

PROJECT MANAGEMENT PROCESSES

INITIATING

PLANNING

EXECUTING

MONITORING & CONTROLLING

CLOSING

4.1. DEVELOP PROJECT CHARTER

- 1. Project statement of work
- 2. Business case
- 3. Agreements
- 4. Enterprise environmental factors
- 5. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Facilitation techniques

Outputs:

- 1. Project charter

4.2. DEVELOP PROJECT MANAGEMENT PLAN

- 1. Project charter
- 2. Business case
- 3. Enterprise environmental factors
- 4. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Analytical techniques

Outputs:

- 1. Project management plan

13.1. IDENTIFY STAKEHOLDERS

- 1. Project charter
- 2. Procurement documents
- 3. Enterprise environmental factors
- 4. Organizational process assets

Tools and Techniques:

- 1. Stakeholder analysis
- 2. Expert judgment
- 3. Meetings

Outputs:

- 1. Stakeholder register

5.1. PLAN SCOPE MANAGEMENT

- 1. Project management plan
- 2. Project charter
- 3. Enterprise environmental factors
- 4. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Analytical techniques
- 3. Meetings

Outputs:

- 1. Scope management plan
- 2. Requirements management plan

6.1. PLAN SCHEDULE MANAGEMENT

- 1. Project management plan
- 2. Project charter
- 3. Enterprise environmental factors
- 4. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Analytical techniques
- 3. Meetings

Outputs:

- 1. Schedule management plan

7.1. PLAN COST MANAGEMENT

- 1. Project management plan
- 2. Project charter
- 3. Enterprise environmental factors
- 4. Organizational process assets

Tools and Techniques:

- 1. Meetings

Outputs:

- 1. Cost management plan

11.1. PLAN RISK MANAGEMENT

- 1. Project management plan
- 2. Project charter
- 3. Stakeholder register
- 4. Enterprise environmental factors
- 5. Organizational process assets

Tools and Techniques:

- 1. Analytical techniques
- 2. Meetings

Outputs:

- 1. Risk management plan

4.3. DIRECT AND MANAGE PROJECT WORK

- 1. Project management plan
- 2. Approved change requests
- 3. Enterprise environmental factors
- 4. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Project management information system
- 3. Meetings

Outputs:

- 1. Deliverables
- 2. Work performance data
- 3. Change requests
- 4. Project management plan updates
- 5. Project document updates

8.2. PERFORM QUALITY ASSURANCE

- 1. Quality management plan
- 2. Work performance reports
- 3. Quality metrics
- 4. Quality control measurements
- 5. Project documents

Tools and Techniques:

- 1. Quality management and control tools
- 2. Quality audits
- 3. Process analysis

Outputs:

- 1. Change requests
- 2. Project management plan updates
- 3. Project document updates
- 4. Organizational process assets updates

10.2. MANAGE COMMUNICATIONS

- 1. Communications management plan
- 2. Work performance reports
- 3. Enterprise environmental factors
- 4. Organizational process assets

Tools and Techniques:

- 1. Communication technology
- 2. Communication models
- 3. Communication methods
- 4. Information management systems
- 5. Performance reporting

Outputs:

- 1. Project communications
- 2. Project management plan updates
- 3. Project document updates
- 4. Organizational process assets updates

4.4. MONITOR AND CONTROL PROJECT WORK

- 1. Project management plan
- 2. Schedule forecasts
- 3. Cost forecasts
- 4. Validated changes
- 5. Work performance information
- 6. Enterprise environmental factors
- 7. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Analytical techniques
- 3. Project management information system
- 4. Meetings

Outputs:

- 1. Change requests
- 2. Work performance reports
- 3. Project management plan updates
- 4. Project document updates

5.5. VALIDATE SCOPE

- 1. Project management plan
- 2. Requirements documentation
- 3. Requirements traceability matrix
- 4. Verified deliverables
- 5. Work performance data

Tools and Techniques:

- 1. Inspection
- 2. Group decision-making techniques

Outputs:

- 1. Accepted deliverables
- 2. Change requests
- 3. Work performance information
- 4. Project document updates

8.3. CONTROL QUALITY

- 1. Project management plan
- 2. Quality metrics
- 3. Quality checklists
- 4. Work performance data
- 5. Approved change requests
- 6. Deliverables
- 7. Project documents
- 8. Organizational process assets

Tools and Techniques:

- 1. Seven basic quality tools
- 2. Statistical sampling
- 3. Inspection
- 4. Approved change requests review

Outputs:

- 1. Quality control measurements
- 2. Validated changes
- 3. Validated deliverables
- 4. Work performance data
- 5. Change requests
- 6. Project management plan updates
- 7. Project document updates
- 8. Organizational process assets updates

12.4. CLOSE PROCUREMENTS

- 1. Project management plan
- 2. Procurement documents

Tools and Techniques:

- 1. Procurement audits
- 2. Procurement negotiations
- 3. Records management system

Outputs:

- 1. Close procurements
- 2. Organizational process assets updates

5.2. COLLECT REQUIREMENTS

- 1. Scope management plan
- 2. Requirements management plan
- 3. Stakeholder management plan
- 4. Project charter
- 5. Stakeholder register

Tools and Techniques:

- 1. Interviews
- 2. Focus groups
- 3. Facilitated workshops
- 4. Group creativity techniques
- 5. Group decision-making techniques
- 6. Questionnaires and surveys
- 7. Observations
- 8. Prototypes
- 9. Benchmarking
- 10. Content diagrams
- 11. Document analysis

Outputs:

- 1. Requirements documentation
- 2. Requirements traceability matrix

6.2. DEFINE ACTIVITIES

- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Milestone list

Tools and Techniques:

- 1. Decomposition
- 2. Rolling wave planning
- 4. Expert judgment

Outputs:

- 1. Activity list
- 2. Activity attributes
- 3. Milestone list

7.2. ESTIMATE COSTS

- 1. Cost management plan
- 2. Human resource management plan
- 3. Scope baseline
- 4. Project schedule
- 5. Enterprise environmental factors
- 6. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Analogous estimating
- 3. Parametric estimating
- 4. Bottom-up estimating
- 5. Three-point estimating
- 6. Reserve analysis
- 7. Cost of quality
- 8. Project management software
- 9. Vendor bid analysis
- 10. Group decision-making techniques

Outputs:

- 1. Activity cost estimates
- 2. Basis of estimates
- 3. Project document updates

11.2. IDENTIFY RISKS

- 1. Risk management plan
- 2. Project management plan
- 3. Stakeholder register
- 4. Enterprise environmental factors
- 5. Organizational process assets

Tools and Techniques:

- 1. Risk management reviews
- 2. Information gathering techniques
- 3. Checklists
- 4. Assumption analysis
- 5. Diagramming techniques
- 6. SWOT analysis
- 7. Expert judgment

Outputs:

- 1. Risk register

9.2. ACQUIRE PROJECT TEAM

- 1. Human resource management plan
- 2. Project staff assignments
- 3. Organizational process assets

Tools and Techniques:

- 1. Pre-assignment
- 2. Negotiation
- 3. Acquisition
- 4. Virtual teams
- 5. Multi-criteria decision analysis

Outputs:

- 1. Project staff assignments
- 2. Resource calendars
- 3. Project management plan updates

12.2. CONDUCT PROCUREMENTS

- 1. Procurement management plan
- 2. Procurement documents
- 3. Source selection criteria
- 4. Seller proposals
- 5. Project documents
- 6. Make-or-buy decisions
- 7. Procurement statement of work
- 8. Organizational process assets

Tools and Techniques:

- 1. Bidder conferences
- 2. Proposal evaluation techniques
- 3. Independent estimates
- 4. Expert judgment
- 5. Advertising
- 6. Analytical techniques
- 7. Procurement negotiations

Outputs:

- 1. Selected sellers
- 2. Agreements
- 3. Resource calendars
- 4. Change requests
- 5. Project management plan updates
- 6. Project document updates

5.6. CONTROL SCOPE

- 1. Project management plan
- 2. Requirements documentation
- 3. Requirements traceability matrix
- 4. Work performance data
- 5. Organizational process assets

Tools and Techniques:

- 1. Variance analysis

Outputs:

- 1. Work performance measurements
- 2. Change requests
- 3. Project management plan updates
- 4. Project document updates
- 5. Organizational process assets updates

10.3. CONTROL COMMUNICATIONS

- 1. Project management plan
- 2. Communications management plan
- 3. Issue log
- 4. Work performance data
- 5. Organizational process assets

Tools and Techniques:

- 1. Information management systems
- 2. Expert judgment
- 3. Meetings

Outputs:

- 1. Work performance information
- 2. Change requests
- 3. Project management plan updates
- 4. Project document updates
- 5. Organizational process assets updates

5.3. DEFINE SCOPE

- 1. Scope management plan
- 2. Project charter
- 3. Requirements documentation
- 4. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Product analysis
- 3. Alternative generation
- 4. Facilitated workshops

Outputs:

- 1. Project scope statement
- 2. Project document updates

6.3. SEQUENCE ACTIVITIES

- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Milestone list

Tools and Techniques:

- 1. Precedence diagramming method (PDM)
- 2. Dependency determination
- 3. Leads and lags

Outputs:

- 1. Project schedule network diagrams
- 2. Project document updates

7.3. DETERMINE BUDGET

- 1. Cost management plan
- 2. Scope estimate
- 3. Activity cost estimates
- 4. Basis of estimates
- 5. Project schedule
- 6. Resource calendars
- 7. Risk register
- 8. Agreements
- 9. Organizational process assets

Tools and Techniques:

- 1. Cost aggregation
- 2. Reserve analysis
- 3. Expert judgment
- 4. Historical relationships
- 5. Funding limit reconciliation

Outputs:

- 1. Cost baseline
- 2. Project funding requirements
- 3. Project document updates

11.3. PERFORM QUALITATIVE RISK ANALYSIS

- 1. Risk management plan
- 2. Scope baseline
- 3. Risk register
- 4. Enterprise environmental factors
- 5. Organizational process assets

Tools and Techniques:

- 1. Risk probability and impact assessment
- 2. Probability and impact matrix
- 3. Risk data quality assessment
- 4. Risk categorization
- 5. Risk urgency assessment
- 6. Expert judgment

Outputs:

- 1. Project document updates

9.3. DEVELOP PROJECT TEAM

- 1. Human resource management plan
- 2. Project staff assignments
- 3. Resource calendars

Tools and Techniques:

- 1. Interpersonal skills
- 2. Training
- 3. Team-building activities
- 4. Ground rules
- 5. Co-location
- 6. Recognition and rewards
- 7. Personal assessment tools

Outputs:

- 1. Team performance assessments
- 2. Enterprise environmental factors updates

12.3. CONDUCT PROCUREMENTS

- 1. Procurement management plan
- 2. Procurement documents
- 3. Source selection criteria
- 4. Seller proposals
- 5. Project documents
- 6. Make-or-buy decisions
- 7. Procurement statement of work
- 8. Organizational process assets

Tools and Techniques:

- 1. Bidder conferences
- 2. Proposal evaluation techniques
- 3. Independent estimates
- 4. Expert judgment
- 5. Advertising
- 6. Analytical techniques
- 7. Procurement negotiations

Outputs:

- 1. Selected sellers
- 2. Agreements
- 3. Resource calendars
- 4. Change requests
- 5. Project management plan updates
- 6. Project document updates

6.7. CONTROL SCHEDULE

- 1. Project management plan
- 2. Project schedule
- 3. Work performance data
- 4. Project calendars
- 5. Schedule data
- 6. Organizational process assets

Tools and Techniques:

- 1. Performance review
- 2. Project management software
- 3. Resource optimization techniques
- 4. Modeling techniques
- 5. Leads and lags
- 6. Schedule compression
- 7. Scheduling tool

Outputs:

- 1. Work performance information
- 2. Schedule forecasts
- 3. Change requests
- 4. Project management plan updates
- 5. Project document updates
- 6. Organizational process assets updates

11.6. CONTROL RISKS

- 1. Project management plan
- 2. Risk register
- 3. Work performance data
- 4. Work performance reports

Tools and Techniques:

- 1. Risk assessment
- 2. Risk audits
- 3. Variance and trend analysis
- 4. Technical performance measurement
- 5. Reserve analysis
- 6. Meetings

Outputs:

- 1. Work performance information
- 2. Change requests
- 3. Project management plan updates
- 4. Project document updates
- 5. Organizational process assets updates

5.4. CREATE WBS

- 1. Scope management plan
- 2. Project charter
- 3. Requirements documentation
- 4. Enterprise environmental factors
- 5. Organizational process assets

Tools and Techniques:

- 1. Decomposition
- 2. Expert judgment

Outputs:

- 1. Scope baseline
- 2. Project document updates

6.4. ESTIMATE ACTIVITY RESOURCES

- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Resource calendars
- 5. Risk register
- 6. Activity cost estimates
- 7. Enterprise environmental factors
- 8. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Alternatives analysis
- 3. Published estimating data
- 4. Bottom-up estimating
- 5. Project management software

Outputs:

- 1. Activity resource requirements
- 2. Resource breakdown structure
- 3. Project document updates

7.3. DETERMINE BUDGET

- 1. Cost management plan
- 2. Scope estimate
- 3. Activity cost estimates
- 4. Basis of estimates
- 5. Project schedule
- 6. Resource calendars
- 7. Risk register
- 8. Agreements
- 9. Organizational process assets

Tools and Techniques:

- 1. Cost aggregation
- 2. Reserve analysis
- 3. Expert judgment
- 4. Historical relationships
- 5. Funding limit reconciliation

Outputs:

- 1. Cost baseline
- 2. Project funding requirements
- 3. Project document updates

11.4. PERFORM QUANTITATIVE RISK ANALYSIS

- 1. Risk management plan
- 2. Cost management plan
- 3. Schedule management plan
- 4. Risk register
- 5. Enterprise environmental factors
- 6. Organizational process assets

Tools and Techniques:

- 1. Data gathering and representation techniques
- 2. Quantitative risk analysis and modeling techniques
- 3. Expert judgment

Outputs:

- 1. Project document updates

9.4. MANAGE PROJECT TEAM

- 1. Human resource management plan
- 2. Project staff assignments
- 3. Team performance assessments
- 4. Issue log
- 5. Work performance reports
- 6. Organizational process assets

Tools and Techniques:

- 1. Observation and conversation
- 2. Project performance appraisals
- 3. Conflict management
- 4. Interpersonal skills

Outputs:

- 1. Project management plan updates
- 2. Project management plan updates
- 3. Enterprise environmental factors updates
- 4. Organizational process assets updates

13.3. MANAGE STAKEHOLDER ENGAGEMENT

- 1. Stakeholder management plan
- 2. Communications management plan
- 3. Change log
- 4. Organizational process assets

Tools and Techniques:

- 1. Communication methods
- 2. Interpersonal skills
- 3. Management skills

Outputs:

- 1. Issue log
- 2. Change requests
- 3. Project management plan updates
- 4. Project document updates
- 5. Organizational process assets updates

7.4. CONTROL COSTS

- 1. Project management plan
- 2. Project funding requirements
- 3. Work performance data
- 4. Organizational process assets

Tools and Techniques:

- 1. Earned value management
- 2. Forecasting
- 3. To-complete performance index (TCPI)
- 4. Performance review
- 5. Project management software
- 6. Reserve analysis

Outputs:

- 1. Work performance information
- 2. Cost forecasts
- 3. Change requests
- 4. Project management plan updates
- 5. Project document updates
- 6. Organizational process assets updates

12.3. CONTROL PROCUREMENTS

- 1. Project management plan
- 2. Procurement documents
- 3. Agreements
- 4. Approved change requests
- 5. Work performance reports
- 6. Work performance data

Tools and Techniques:

- 1. Contract change control system
- 2. Procurement performance reviews
- 3. Inspection and audits
- 4. Performance reporting
- 5. Payment systems
- 6. Claims administration
- 7. Records management system

Outputs:

- 1. Work performance information
- 2. Change requests
- 3. Project management plan updates
- 4. Project document updates
- 5. Organizational process assets updates

6.5. ESTIMATE ACTIVITY DURATIONS

- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Activity resource requirements
- 5. Resource calendars
- 6. Project scope statement
- 7. Risk register
- 8. Resource breakdown structure
- 9. Enterprise environmental factors
- 10. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Analogous estimating
- 3. Parametric estimating
- 4. Three-point estimating
- 5. Group decision-making techniques
- 6. Reserve analysis

Outputs:

- 1. Activity duration estimates
- 2. Project document updates

6.6. DEVELOP SCHEDULE

- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Project schedule network diagrams
- 5. Activity resource requirements
- 6. Resource calendars
- 7. Activity duration estimates
- 8. Project scope statement
- 9. Risk register
- 10. Project staff assignments
- 11. Resource breakdown structure
- 12. Enterprise environmental factors
- 13. Organizational process assets

Tools and Techniques:

- 1. Schedule network analysis
- 2. Critical path method
- 3. Critical chain method
- 4. Resource optimization techniques
- 5. Modeling techniques
- 6. Leads and lags
- 7. Schedule compression
- 8. Scheduling tool

Outputs:

- 1. Schedule baseline
- 2. Project schedule
- 3. Schedule data
- 4. Project calendars
- 5. Project management plan updates
- 6. Project document updates

8.1. PLAN QUALITY MANAGEMENT

- 1. Project management plan
- 2. Stakeholder registry
- 3. Risk register
- 4. Requirements documentation
- 5. Enterprise environmental factors
- 6. Organizational process assets

Tools and Techniques:

- 1. Change requests
- 2. Cost-benefit analysis
- 3. Cost of quality
- 4. Seven basic quality tools
- 5. Benchmarking
- 6. Statistical sampling
- 7. Additional quality planning tools
- 8. Meetings

Outputs:

- 1. Quality management plan
- 2. Process improvement plan
- 3. Quality metrics
- 4. Quality checklists
- 5. Project document updates

11.5. PLAN RISK RESPONSES

- 1. Risk management plan
- 2. Risk register

Tools and Techniques:

- 1. Strategies for negative risks or threats
- 2. Strategies for positive risks or opportunities
- 3. Contingency response strategies
- 4. Expert judgment

Outputs:

- 1. Project management plan updates
- 2. Project document updates

9.4. MANAGE PROJECT TEAM

- 1. Human resource management plan
- 2. Project staff assignments
- 3. Team performance assessments
- 4. Issue log
- 5. Work performance reports
- 6. Organizational process assets

Tools and Techniques:

- 1. Observation and conversation
- 2. Project performance appraisals
- 3. Conflict management
- 4. Interpersonal skills

Outputs:

- 1. Project management plan updates
- 2. Project management plan updates
- 3. Enterprise environmental factors updates
- 4. Organizational process assets updates

13.3. MANAGE STAKEHOLDER ENGAGEMENT

- 1. Stakeholder management plan
- 2. Communications management plan
- 3. Change log
- 4. Organizational process assets

Tools and Techniques:

- 1. Communication methods
- 2. Interpersonal skills
- 3. Management skills

Outputs:

- 1. Issue log
- 2. Change requests
- 3. Project management plan updates
- 4. Project document updates
- 5. Organizational process assets updates

7.4. CONTROL COSTS

- 1. Project management plan
- 2. Project funding requirements
- 3. Work performance data
- 4. Organizational process assets

Tools and Techniques:

- 1. Earned value management
- 2. Forecasting
- 3. To-complete performance index (TCPI)
- 4. Performance review
- 5. Project management software
- 6. Reserve analysis

Outputs:

- 1. Work performance information
- 2. Cost forecasts
- 3. Change requests
- 4. Project management plan updates
- 5. Project document updates
- 6. Organizational process assets updates

12.3. CONTROL PROCUREMENTS

- 1. Project management plan
- 2. Procurement documents
- 3. Agreements
- 4. Approved change requests
- 5. Work performance reports
- 6. Work performance data

Tools and Techniques:

- 1. Contract change control system
- 2. Procurement performance reviews
- 3. Inspection and audits
- 4. Performance reporting
- 5. Payment systems
- 6. Claims administration
- 7. Records management system

Outputs:

- 1. Work performance information
- 2. Change requests
- 3. Project management plan updates
- 4. Project document updates
- 5. Organizational process assets updates

6.5. ESTIMATE ACTIVITY DURATIONS

- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Activity resource requirements
- 5. Resource calendars
- 6. Project scope statement
- 7. Risk register
- 8. Resource breakdown structure
- 9. Enterprise environmental factors
- 10. Organizational process assets

Tools and Techniques:

- 1. Expert judgment
- 2. Analogous estimating
- 3. Parametric estimating
- 4. Three-point estimating
- 5. Group decision-making techniques
- 6. Reserve analysis

Outputs:

- 1. Activity duration estimates
- 2. Project document updates

6.6. DEVELOP SCHEDULE

- 1. Schedule management plan
- 2. Activity list
- 3. Activity attributes
- 4. Project schedule network diagrams
- 5. Activity resource requirements
- 6. Resource calendars
- 7. Activity duration estimates
- 8. Project scope statement
- 9. Risk register
- 10. Project staff assignments
- 11. Resource breakdown structure
- 12. Enterprise environmental factors
- 13. Organizational process assets

Tools and Techniques:

- 1. Schedule network analysis
- 2. Critical path method
- 3. Critical chain method
- 4. Resource optimization techniques
- 5. Modeling techniques
- 6. Leads and lags
- 7. Schedule compression
- 8. Scheduling tool

Outputs:

- 1. Schedule baseline
- 2. Project schedule
- 3. Schedule data
- 4. Project calendars
- 5. Project management plan updates
- 6. Project document updates

9.1. PLAN HUMAN RESOURCE MANAGEMENT

- 1. Project management plan
- 2. Activity resource requirements
- 3. Enterprise environmental factors
- 4. Organizational process assets

Tools and Techniques:

- 1. Organization charts and position descriptions
- 2. Networking
- 3. Organizational theory
- 4. Expert judgment
- 5. Meetings

Outputs:

- 1. Human resource plan

12.1. PLAN PROCUREMENT MANAGEMENT

- 1. Project management plan
- 2. Requirements documentation
- 3. Risk register
- 4. Activity resource requirements
- 5. Project schedule
- 6. Activity cost estimates
- 7. Stakeholder register
- 8. Enterprise environmental factors
- 9. Organizational process assets

Tools and Techniques:

- 1. Make-or-buy analysis
- 2. Expert judgment
- 3. Market research
- 4. Meetings

Outputs:

- 1. Procurement management plan
- 2. Procurement statements of work
- 3. Procurement documents
- 4. Source selection criteria
- 5. Make-or-buy decisions
- 6. Change requests
- 7. Project document updates

9.4. MANAGE PROJECT TEAM

- 1. Human resource management plan
- 2. Project staff assignments
- 3. Team performance assessments
- 4. Issue log
- 5. Work performance reports

