Input:
- Project statement of work
- Business case
- Agreements
- Enterprise environmental factors
- Organizational process assets

Tools & Techniques
- Expert judgement
- Facilitation techniques

Output:
- Project charter
Integration Mgmt / Planning Process Group
4.2 Develop Project Management Plan

- **Input:**
  - Project Charter
  - Outputs from other processes
  - Enterprise environmental factors
  - Organizational process assets

- **Tools & Techniques**
  - Expert judgement
  - Facilitation Techniques

- **Output:**
  - Project management plan
Integration Mgmt / Executing Process Group
4.3 Direct and Manage Project Work

**Input:**
- Project management plan
- Approved change requests
- Enterprise environmental factors
- Organizational process assets

**Output:**
- Deliverables
- Work performance information
- Change requests
- Project management plan updates
- Project document updates

**Tools & Techniques**
- Expert judgement
- Project management information system
- Meetings
Integration Mgmt / Monitoring & Controlling
4.4 Monitor and Control Project Work

**Input:**
- Project management plan
- Schedule forecasts
- Cost forecasts
- Validated changes
- Work performance information
- Enterprise environmental factors
- Organizational process assets

**Output:**
- Change requests
- Work performance reports
- Project management plan updates
- Project documents updates

**Tools & Techniques**
- Expert judgement
- Analytical Techniques
- Project Management Information System
- Meetings
Integration Mgmt / Monitoring & Controlling
4.5 Perform Integrated Change Control

**Input:**
- Project management plan
- Work performance reports
- Change requests
- Enterprise environmental factors
- Organizational process assets

**Output:**
- Approved change requests
- Change log
- Project management plan updates
- Project documents updates

**Tools & Techniques**
- Expert judgement
- Meetings
- Change control tools
**Input:**
- Project management plan
- Accepted deliverables
- Organizational process assets

**Tools & Techniques**
- Expert judgement
- Analytical techniques
- Meetings

**Output:**
- Final product, service or result transition
- Organizational process assets updates
Scope Mgmt / Planning Process Group
5.1 Plan Scope Management

- **Input:**
  - Project management plan
  - Project Charter
  - Enterprise environmental factors
  - Organizational process assets

- **Tools & Techniques**
  - Expert judgement
  - Meetings

- **Output:**
  - Scope Management Plan
  - Requirements Management Plan
Scope Mgmt / Planning Process Group
5.2 Collect Requirements

- **Input:**
  - Scope management plan
  - Requirements management plan
  - Stakeholder management plan
  - Project charter
  - Stakeholder register

- **Output:**
  - Requirements documentation
  - Requirements traceability matrix

- **Tools & Techniques**
  - Interviews
  - Focus groups
  - Facilitated workshops
  - Group creativity techniques
  - Group decision-making techniques
  - Questionnaires and surveys
  - Observations
  - Prototypes
  - Benchmarking
  - Context Diagrams
  - Document Analysis
Scope Mgmt / Planning Process Group
5.3 Define Scope

- **Input:**
  - Scope management plan
  - Project charter
  - Requirements documentation
  - Organizational process assets

- **Tools & Techniques**
  - Expert judgement
  - Product analysis
  - Alternatives generation
  - Facilitated workshops

- **Output:**
  - Project scope statement
  - Project documents updates
Scope Mgmt / Planning Process Group
5.4 Create Work Breakdown Structure

**Input:**
- Scope management plan
- Project scope statement
- Requirements documentation
- Enterprise environmental factors
- Organizational process assets

**Tools & Techniques**
- Decomposition
- Expert judgement

**Output:**
- Scope baseline
- Project documents updates
Scope Mgmt / Monitoring and Controlling
5.5 Validate Scope

- **Input:**
  - Project management plan
  - Requirements documentation
  - Requirements traceability matrix
  - Verified deliverables
  - Work performance data

- **Tools & Techniques**
  - Inspection
  - Group decision-making techniques

- **Output:**
  - Accepted deliverables
  - Change requests
  - Work performance information
  - Project document updates
Scope Mgmt / Monitoring and Controlling

5.6 Control Scope

**Input:**
- Project management plan
- Requirements documentation
- Requirements traceability matrix
- Work performance data
- Organisation process assets

**Tools & Techniques**
- Variance analysis

**Output:**
- Work performance information
- Change requests
- Project management plan updates
- Project document updates
- Organizational process assets updates
Time Mgmt / Planning Process Group
6.1 Plan Schedule Management

- **Input:**
  - Project management plan
  - Project charter
  - Enterprise environmental factors
  - Organization process assets

- **Tools & Techniques**
  - Expert judgement
  - Analytical techniques
  - Meetings

- **Output:**
  - Schedule management plan
Time Mgmt / Planning Process Group
6.2 Define Activities

■ **Input:**
  ■ Schedule management plan
  ■ Scope baseline
  ■ Enterprise environmental factors
  ■ Organization process assets

■ **Tools & Techniques**
  ■ Decomposition
  ■ Rolling wave planning
  ■ Expert judgement

■ **Output:**
  ■ Activity list
  ■ Activity attributes
  ■ Milestone list
6.3 Sequence Activities

**Input:**
- Schedule management plan
- Activity list
- Activity attributes
- Milestone list
- Project scope statement
- Enterprise environmental factors
- Organizational process assets

**Tools & Techniques**
- Precedence Diagramming Method (PDM)
- Dependency determination
- Leads and lags

**Output:**
- Project schedule network diagrams
- Project documents updates
Input:
- Schedule management plan
- Activity list
- Activity attributes
- Resource calendars
- Risk register
- Activity cost estimates
- Enterprise environmental factors
- Organizational process assets

Tools & Techniques
- Expert judgement
- Alternative analysis
- Published estimating data
- Bottom-up estimating
- Project management software

Output:
- Activity resource requirements
- Resource breakdown structure
- Project documents updates
Input:
- Schedule management plan
- Activity list
- Activity attributes
- Activity resource requirements
- Resource calendars
- Project scope statement
- Risk register
- Resource breakdown structure
- Enterprise environmental factors
- Organizational process assets

Tools & Techniques
- Expert judgement
- Analogous estimating
- Parametric estimating
- Three-point estimating
- Group decision-making techniques
- Reserve analysis

Output:
- Activity duration estimates
- Project document updates
Input:
- Schedule management plan
- Activity list
- Activity attributes
- Project schedule network diagrams
- Activity resource requirements
- Resource calendars
- Activity duration estimates
- Project scope statement
- Risk register
- Project staff assignments
- Resource breakdown structure
- Enterprise environmental factors
- Organizational process assets

Tools & Techniques
- Schedule network analysis
- Critical path method
- Critical chain method
- Resource optimization techniques
- Modelling techniques
- Leads and lags
- Schedule compression
- Scheduling tool

Output:
- Schedule baseline
- Project schedule
- Schedule data
- Project calendars
- Project management plan updates
- Project documents updates
Time Mgmt / Monitoring and Controlling
6.7 Control Schedule

- **Input:**
  - Project management plan
  - Project schedule
  - Work performance data
  - Project calendars
  - Schedule data
  - Organizational process assets

- **Tools & Techniques**
  - Performance reviews
  - Project management software
  - Resource optimization techniques
  - Modeling techniques
  - Leads and lags
  - Schedule compression
  - Scheduling tool

- **Output:**
  - Work performance information
  - Schedule forecasts
  - Change requests
  - Project management plan updates
  - Project documents updates
  - Organizational process assets updates
Cost Mgmt / Planning Process Group
7.1 Plan Cost Management

- **Input:**
  - Project management plan
  - Project charter
  - Enterprise environmental factors
  - Organizational process assets

- **Tools & Techniques**
  - Expert judgement
  - Analytical techniques
  - Meetings

- **Output:**
  - Cost management plan
Cost Mgmt / Planning Process Group

7.2 Estimate Costs

**Input:**
- Cost management plan
- Human resource management plan
- Scope baseline
- Project schedule
- Risk register
- Enterprise environmental factors
- Organizational process assets

**Output:**
- Activity cost estimates
- Basis of estimates
- Project documents updates

**Tools & Techniques**
- Expert judgement
- Analogous estimating
- Parametric estimating
- Bottom-up estimating
- Three-point estimating
- Reserve analysis
- Cost of quality (COQ)
- Project management software
- Vendor bid analysis
- Group decision-making techniques
Cost Mgmt / Planning Process Group
7.3 Determine Budget

- **Input:**
  - Cost management plan
  - Scope baseline
  - Activity cost estimates
  - Basis of estimates
  - Project schedule
  - Resource calendars
  - Risk register
  - Agreements
  - Organization process assets

- **Output:**
  - Cost baseline
  - Project funding requirements
  - Project documents updates

- **Tools & Techniques**
  - Cost aggregation
  - Reserve analysis
  - Expert judgement
  - Historical relationships
  - Funding limit reconciliation
Cost Mgmt / Monitoring and Controlling
7.4 Control Costs

**Input:**
- Project management plan
- Project funding requirements
- Work performance data
- Organizational process assets

**Tools & Techniques**
- Earned value management
- Forecasting
- To-complete performance index (TCPI)
- Performance reviews
- Project management software
- Reserve analysis

**Output:**
- Work performance information
- Cost forecasts
- Change requests
- Project management plan updates
- Project documents updates
- Organization process assets updates
Input:
- Project management plan
- Stakeholder register
- Risk register
- Requirements documentation
- Enterprise environmental factors
- Organizational process assets

Output:
- Quality management plan
- Process improvement plan
- Quality metrics
- Quality checklists
- Project documents updates

Tools & Techniques
- Cost-benefit analysis
- Cost of quality
- Seven basic quality tools
- Benchmarking
- Design of experiments
- Statistical sampling
- Additional quality planning tools
- Meetings
Input:
- Quality management plan
- Process Improvement Plan
- Quality metrics
- Quality control measurements
- Project documents

Output:
- Change requests
- Project management plan updates
- Project documents updates
- Organisational process assets updates

Tools & Techniques
- Quality management and control tools
- Quality audits
- Process analysis
Quality Mgmt / Monitoring & Controlling

8.3 Control Quality

**Input:**
- Project management plan
- Quality metrics
- Quality checklists
- Work performance data
- Approved change requests
- Deliverables
- Project documents
- Organizational process assets

**Tools & Techniques**
- Seven basic quality tools
- Statistical sampling
- Inspection
- Approved change requests review

**Output:**
- Quality control measurements
- Validated changes
- Verified deliverables
- Work performance information
- Change requests
- Project management plan updates
- Project document updates
- Organizational process assets updates
Human Resources Mgmt / Planning
9.1 Plan Human Resource Management

- **Input:**
  - Project Management Plan
  - Activity resource requirements
  - Enterprise environmental factors
  - Organizational process assets

- **Tools & Techniques**
  - Organisational charts and position descriptions
  - Networking
  - Organizational theory
  - Expert judgement
  - Meetings

- **Output:**
  - Human resource management plan
Human Resources Mgmt / Executing
9.2 Acquire Project Team

**Input:**
- Human resources management plan
- Enterprise environmental factors
- Organizational process assets

**Tools & Techniques**
- Pre-assignment
- Negotiation
- Acquisition
- Virtual Teams
- Multi-criteria decision analysis

**Output:**
- Project staff assignments
- Resource calendars
- Project management plan updates
Human Resources Mgmt / Executing
9.3 Develop Project Team

- **Input:**
  - Human resource management plan
  - Project staff assignments
  - Resource calendars

- **Tools & Techniques**
  - Interpersonal skills
  - Training
  - Team-building activities
  - Ground rules
  - Co-location
  - Recognition and rewards
  - Personal assessment tools

- **Output:**
  - Team performance assessments
  - Enterprise environmental factors updates
Human Resources Mgmt / Executing
9.4 Manage Project Team

Input:
- Human resource management plan
- Project staff assignments
- Team performance assessments
- Issue log
- Work performance reports
- Organizational process assets

Output:
- Change requests
- Project management plan updates
- Project documents updates
- Enterprise environmental factors updates
- Organizational process assets updates

Tools & Techniques
- Observation and conversation
- Project performance appraisals
- Conflict management
- Interpersonal skills
Input:
- Project management plan
- Stakeholder register
- Enterprise environmental factors
- Organizational process assets

Tools & Techniques
- Communications requirement analysis
- Communications technology
- Communication models
- Communication methods
- Meetings

Output:
- Communications management plan
- Project documents updates
Communications Mgmt / Executing
10.2 Manage Communications

Input:
- Communication management plan
- Work performance reports
- Enterprise environmental factors
- Organizational process assets

Tools & Techniques
- Communication technology
- Communication models
- Communication methods
- Information management systems
- Performance reporting

Output:
- Project communications
- Project management plan updates
- Project documents updates
- Organizational process assets updates
Communications Mgmt / Monitoring & Controlling

10.3 Control Communications

**Input:**
- Project management plan
- Project communications
- Issue log
- Work performance data
- Organizational process assets

**Tools & Techniques**
- Information management systems
- Expert judgement
- Meetings

**Output:**
- Work performance information
- Change requests
- Project management plan updates
- Project documents updates
- Organizational process assets updates
Input:
- Project management plan
- Project charter
- Stakeholder register
- Enterprise environmental factors
- Organizational process assets

Tools & Techniques
- Analytical techniques
- Expert judgement
- Meetings

Output:
- Risk management plan
Risk Mgmt / Planning Process Group
11.2 Identify Risks

**Input:**
- Risk management plan
- Cost management plan
- Schedule management plan
- Quality management plan
- Human Resource management plan
- Scope baseline
- Activity cost estimates
- Activity duration estimates
- Stakeholder register
- Project documents
- Procurement documents
- Enterprise environmental factors
- Organizational process assets

**Output:**
- Risk register

**Tools & Techniques**
- Documentation reviews
- Information gathering techniques
- Checklist analysis
- Assumptions analysis
- Diagramming techniques
- SWOT analysis
- Expert judgement
11.3 Perform Qualitative Risk Analysis

**Input:**
- Risk management plan
- Scope baseline
- Risk register
- Enterprise environmental factors
- Organizational process assets

**Tools & Techniques**
- Risk probability and impact assessment
- Probability and impact matrix
- Risk data quality assessment
- Risk categorization
- Risk urgency assessment
- Expert judgement

**Output:**
- Project documents updates
11.4 Perform Quantitative Risk Analysis

**Input:**
- Risk management plan
- Cost management plan
- Schedule management plan
- Risk register
- Enterprise environmental factors
- Organizational process assets

**Tools & Techniques**
- Data gathering and representation techniques
- Quantitative risk analysis and modeling techniques
- Expert judgement

**Output:**
- Project documents updates
**Risk Mgmt / Planning Process Group**

11.5 Plan Risk Responses

- **Input:**
  - Risk management plan
  - Risk register

- **Tools & Techniques**
  - Strategies for negative risks or threats
  - Strategies for positive risks or opportunities
  - Contingent response strategies
  - Expert judgement

- **Output:**
  - Project management plan updates
  - Project documents updates
Risk Mgmt / Monitoring and Controlling

11.6 Control Risks

Input:
- Project management plan
- Risk register
- Work performance data
- Work performance reports

Output:
- Work performance information
- Change requests
- Project Management Plan updates
- Project documents updates
- Organizational process assets updates

Tools & Techniques
- Risk reassessment
- Risk audits
- Variance and trend analysis
- Technical performance measurement
- Reserve analysis
- Meetings
12.1 Plan Procurement Management

**Input:**
- Project management plan
- Requirement documentation
- Risk register
- Activity resource requirements
- Project schedule
- Activity cost estimates
- Stakeholder register
- Enterprise environmental factors
- Organizational process assets

**Output:**
- Procurement management plan
- Procurement statement of work
- Procurement documents
- Source selection criteria
- Make-or-buy decisions
- Change requests
- Project documents updates

**Tools & Techniques**
- Make-or-buy analysis
- Expert judgement
- Market research
- Meetings
### Procurement Mgmt / Executing Process Group

#### 12.2 Conduct Procurements

**Input:**
- Project management plan
- Procurement documents
- Source selection criteria
- Seller proposals
- Project documents
- Make-or-buy decisions
- Procurement statement of work
- Organizational process assets

**Output:**
- Selected sellers
- Agreements
- Resource calendars
- Change requests
- Project management plan updates
- Project documents updates

**Tools & Techniques**
- Bidder conference
- Proposal evaluation techniques
- Independent estimates
- Expert judgement
- Advertising
- Analytical techniques
- Procurement negotiations
Procurement Mgmt / Monitoring & Controlling

12.3 Control Procurements

**Input:**
- Project management plan
- Procurement documents
- Agreements
- Approved change requests
- Work performance reports
- Work performance data

**Output:**
- Work performance information
- Change requests
- Project management plan updates
- Project documents updates
- Organizational process assets updates

**Tools & Techniques**
- Contract change control system
- Procurement performance reviews
- Inspections and audits
- Performance reporting
- Payment systems
- Claims administration
- Records management system
**Input:**
- Project management plan
- Procurement documents

**Tools & Techniques**
- Procurement audits
- Procurement negotiations
- Records management system

**Output:**
- Closed procurements
- Organizational process assets updates
Communication Mgmt / Initiating Process Group
13.1 Identify Stakeholders

- **Input:**
  - Project charter
  - Procurement documents
  - Enterprise environmental factors
  - Organizational process assets

- **Tools & Techniques**
  - Stakeholder analysis
  - Expert judgement
  - Meetings

- **Output:**
  - Stakeholder register
13.2 Plan Stakeholder Management

**Input:**
- Project management plan
- Stakeholder register
- Enterprise environmental factors
- Organization process assets

**Tools & Techniques**
- Expert judgement
- Meetings
- Analytical techniques

**Output:**
- Stakeholder management plan
- Project documents updates
Stakeholder Mgmt / Executing Process Group
13.3 Manage Stakeholder Engagement

- **Input:**
  - Stakeholder management plan
  - Communications management plan
  - Change log
  - Organizational process assets

- **Tools & Techniques**
  - Communication methods
  - Interpersonal skills
  - Management skills

- **Output:**
  - Issue log
  - Change requests
  - Project management plan updates
  - Project documents updates
  - Organizational process assets updates
Stakeholder Mgmt / Monitoring & Controlling
13.4 Control Stakeholder Engagement

**Input:**
- Project management plan
- Issue log
- Work performance data
- Project documents

**Tools & Techniques**
- Information management systems
- Expert judgement
- Meetings

**Output:**
- Work performance information
- Change requests
- Project management plan updates
- Project documents updates
- Organizational process assets updates
The Inputs are often Outputs of other processes.

These are the Tools and Techniques that are to be used to generate Outputs from Inputs.