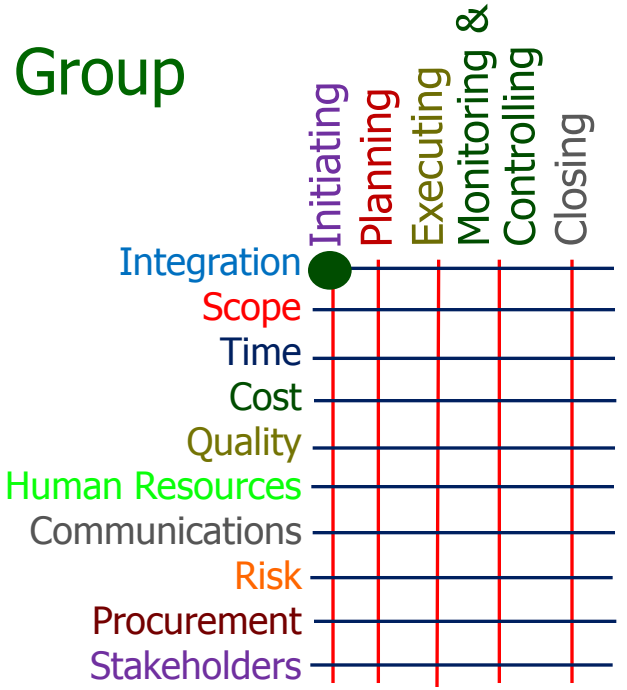
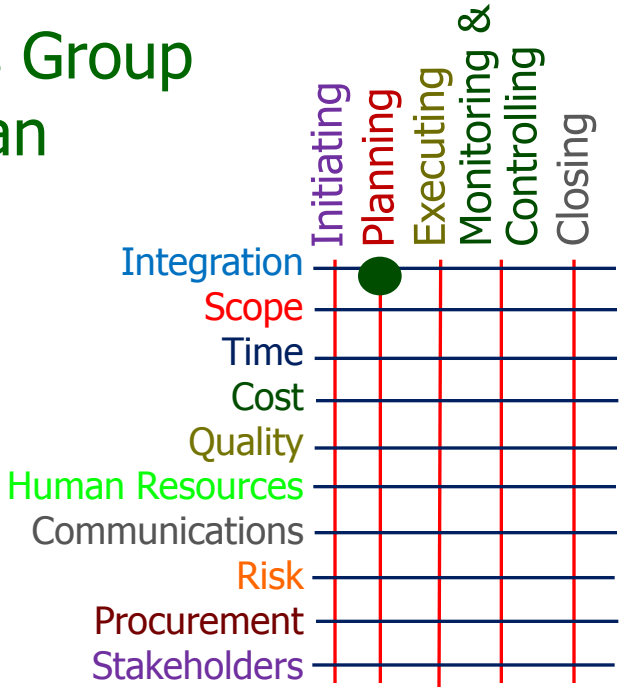
Integration Mgmt / Initiating Process Group
4.1 Develop Project Charter



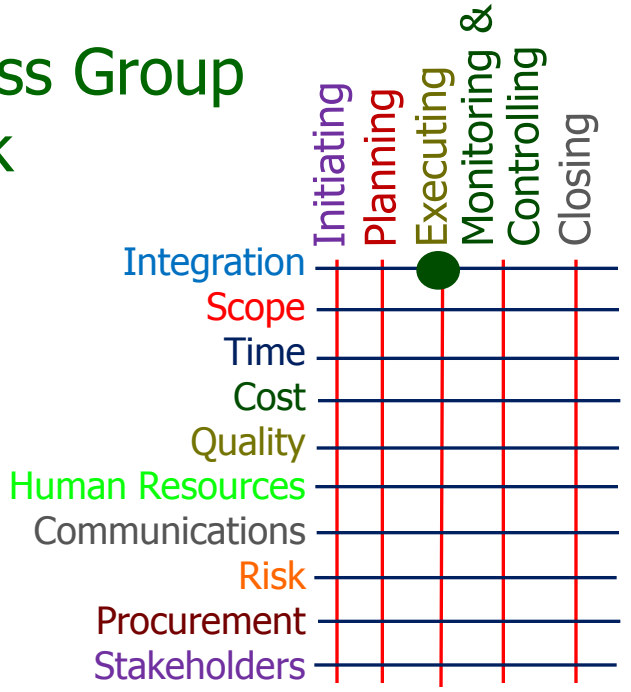
- Input:
  - Project statement of work
  - Business case
  - Agreements
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Expert judgement
  - Facilitation techniques
- Output:
  - Project charter

Integration Mgmt / Planning Process Group
4.2 Develop Project Management Plan



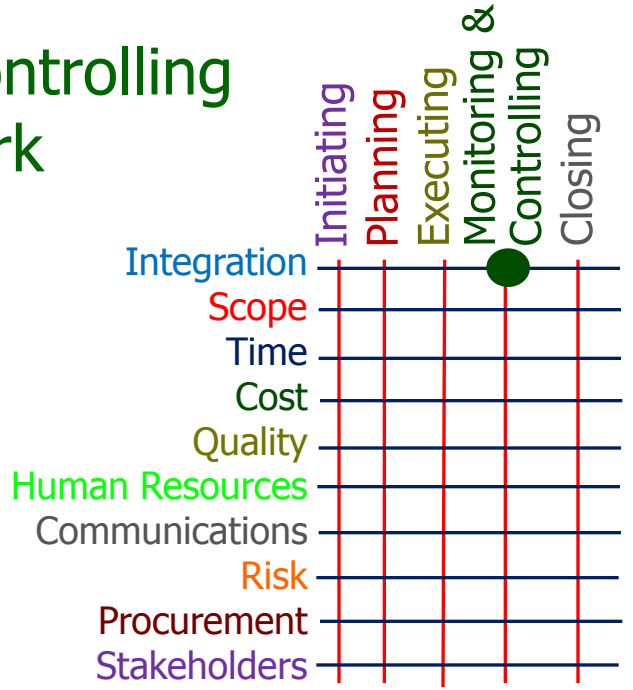
- Input:
  - Project Charter
  - Outputs from other processes
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Expert judgement
  - Facilitation Techniques
- Output:
  - Project management plan

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
- **Tools & Techniques**
  - Expert judgement
  - Project management information system
  - Meetings
- **Output:**
  - Deliverables
  - Work performance information
  - Change requests
  - Project management plan updates
  - Project document updates

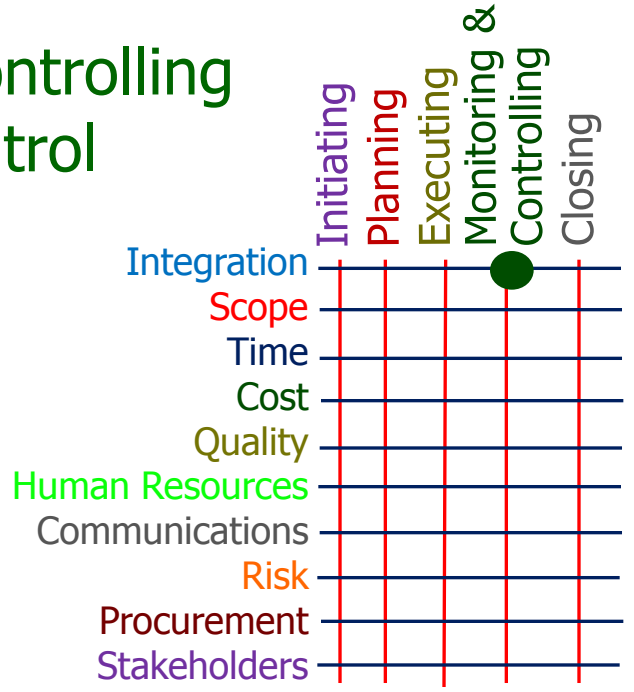
4 Integration Mgmt / Monitoring & Controlling
4.4 Monitor and Control Project Work



- 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

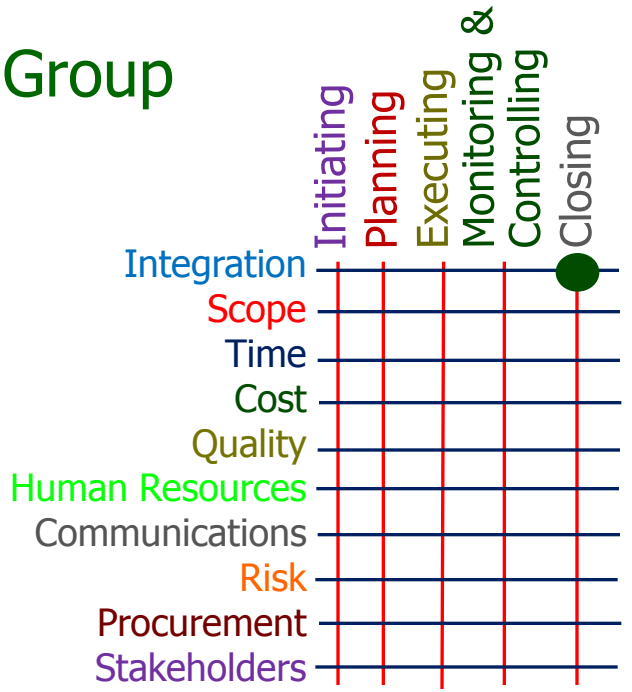
- Tools & Techniques
  - Expert judgement
  - Analytical Techniques
  - Project Management Information System
  - Meetings

Integration Mgmt / Monitoring & Controlling
4.5 Perform Integrated Change Control



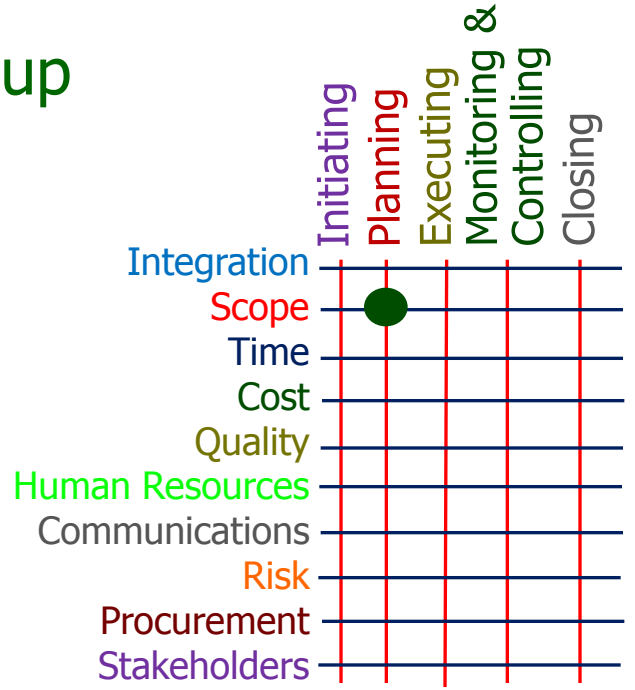
- Input:
  - Project management plan
  - Work performance reports
  - Change requests
  - Enterprise environmental factors
  - Organizational process assets
- Output:
  - Approved change requests
  - Change log
  - Project management plan updates
  - Project documents updates
- Tools & Techniques
  - Expert judgement
  - Meetings
  - Change control tools

Integration Mgmt / Closing Process Group
4.6 Close Project or Phase



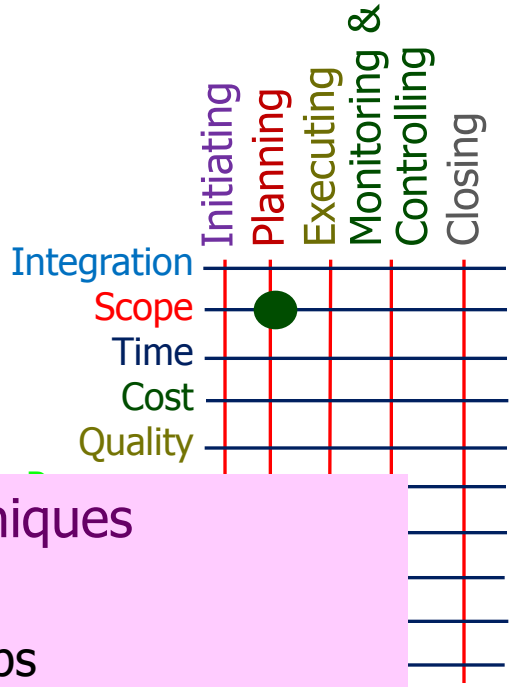
- Input:
  - Project management plan
  - Accepted deliverables
  - Organizational process assets
- Tools & Techniques
  - Expert judgement
  - Analytical techniques
  - Meetings
- Output:
  - Final product, service or result transition
  - Organizational process assets updates

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

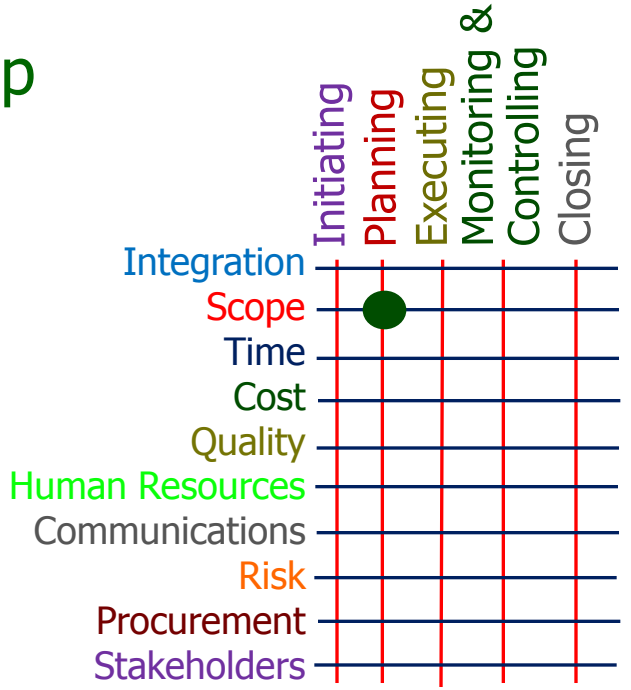
Scope Mgmt / Planning Process Group
5.2 Collect Requirements



- Input:
  - Scope management plan
  - Requirements management plan
  - Stakeholder management plan
  - Project charter
  - Stakeholder register
- Output:
  - Requirements documentation
  - Requirements traceability matrix

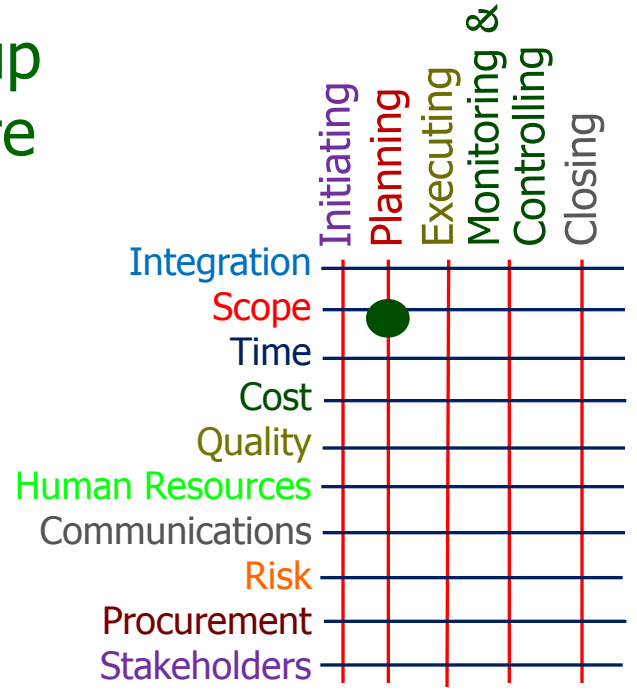
- Tools & Techniques
  - Interviews
  - Focus groups
  - Facilitated workshops
  - Group creativity techniques
  - Group decision-making techniques
  - Questionnaires and surveys
  - Observations
  - Prototypes
  - Benchmarking
  - Context Diagrams
  - Document Analysis

Scope Mgmt / Planning Process Group
5.3 Define Scope



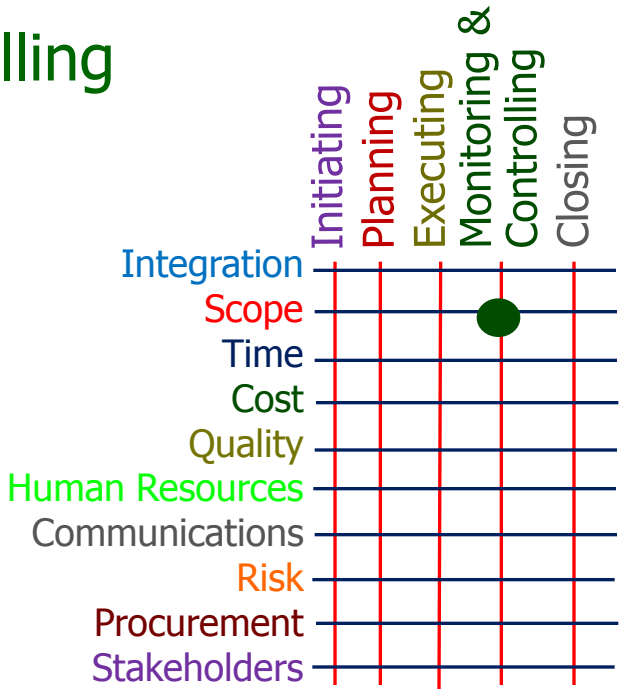
- Input:
  - Scope management plan
  - Project charter
  - Requirements documentation
  - Organizational process assets
- Tools & Techniques
  - Expert judgement
  - Product analysis
  - Alternatives generation
  - Facilitated workshops
- Output:
  - Project scope statement
  - Project documents updates

Scope Mgmt / Planning Process Group
5.4 Create Work Breakdown Structure



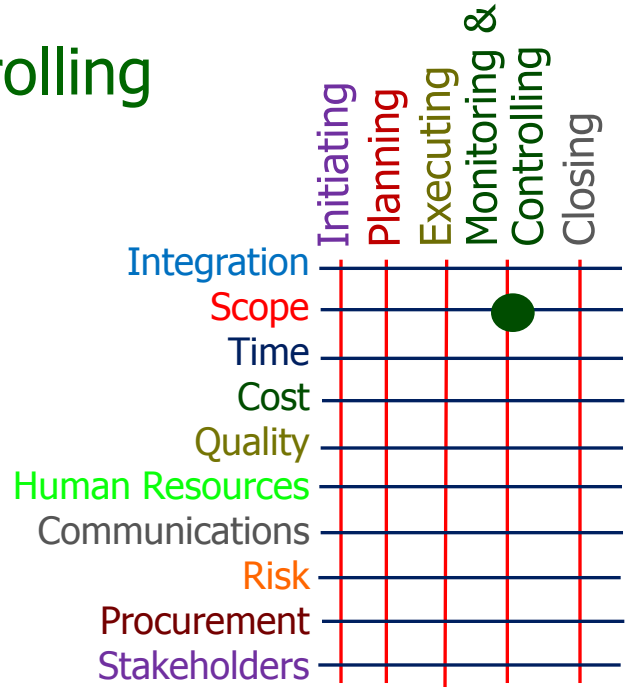
- Input:
  - Scope management plan
  - Project scope statement
  - Requirements documentation
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Decomposition
  - Expert judgement
- Output:
  - Scope baseline
  - Project documents updates

Scope Mgmt / Monitoring and Controlling
5.5 Validate Scope



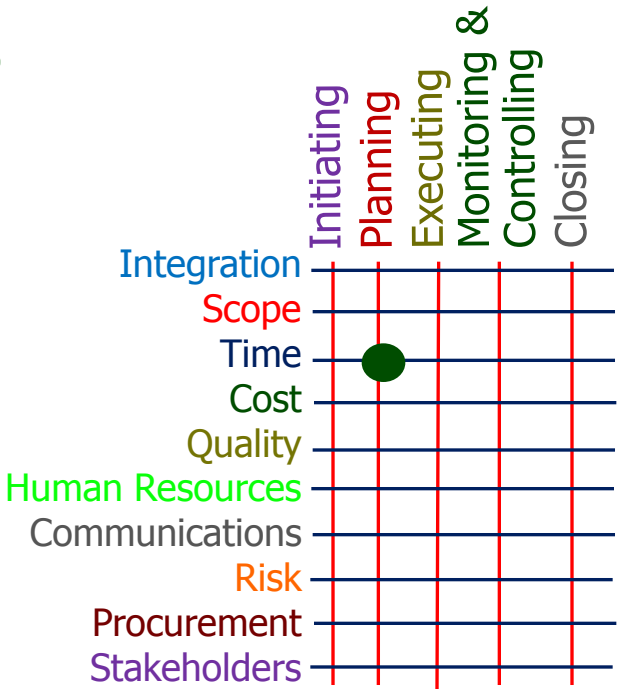
- Input:
  - Project management plan
  - Requirements documentation
  - Requirements traceability matrix
  - Verified deliverables
  - Work performance data
- Tools & Techniques
  - Inspection
  - Group decision-making techniques
- Output:
  - Accepted deliverables
  - Change requests
  - Work performance information
  - Project document updates

Scope Mgmt / Monitoring and Controlling
5.6 Control Scope



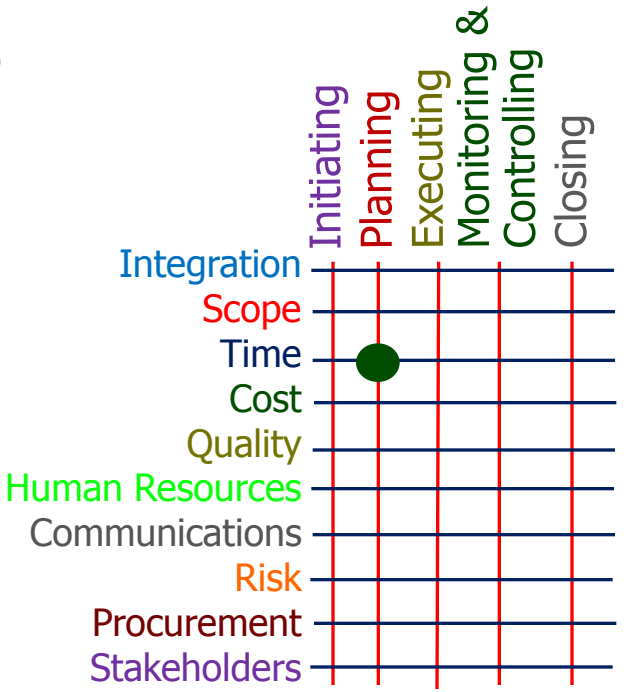
- **Input:**
  - Project management plan
  - Requirements documentation
  - Requirements traceability matrix
  - Work performance data
  - Organisation process assets
- **Tools & Techniques**
  - Variance analysis
- **Output:**
  - Work performance information
  - Change requests
  - Project management plan updates
  - Project document updates
  - Organizational process assets updates

Time Mgmt / Planning Process Group
6.1 Plan Schedule Management



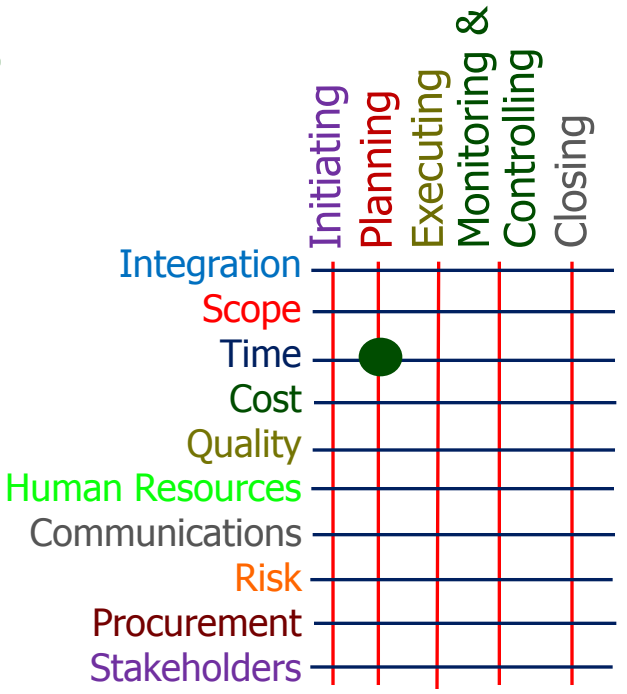
- Input:
  - Project management plan
  - Project charter
  - Enterprise environmental factors
  - Organization process assets
- Tools & Techniques
  - Expert judgement
  - Analytical techniques
  - Meetings
- Output:
  - Schedule management plan

Time Mgmt / Planning Process Group
6.2 Define Activities



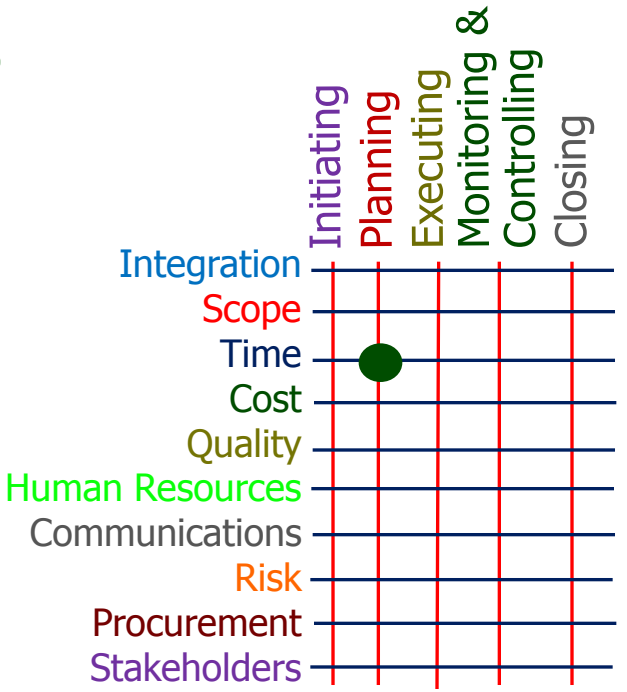
- Input:
  - Schedule management plan
  - Scope baseline
  - Enterprise environmental factors
  - Organization process assets
- Tools & Techniques
  - Decomposition
  - Rolling wave planning
  - Expert judgement
- Output:
  - Activity list
  - Activity attributes
  - Milestone list

Time Mgmt / Planning Process Group
6.3 Sequence Activities



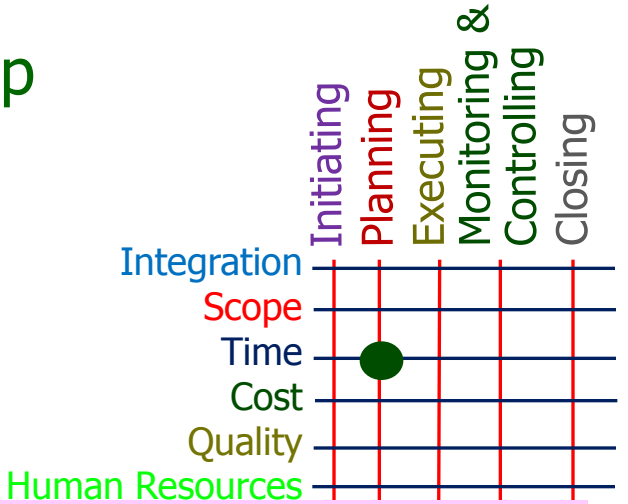
- **Input:**
  - Schedule management plan
  - Activity list
  - Activity attributes
  - Milestone list
  - Project scope statement
  - Enterprise environmental factors
  - Organizational process assets
- **Tools & Techniques**
  - Precedence Diagramming Method (PDM)
  - Dependency determination
  - Leads and lags
- **Output:**
  - Project schedule network diagrams
  - Project documents updates

Time Mgmt / Planning Process Group
6.4 Estimate Activity Resources



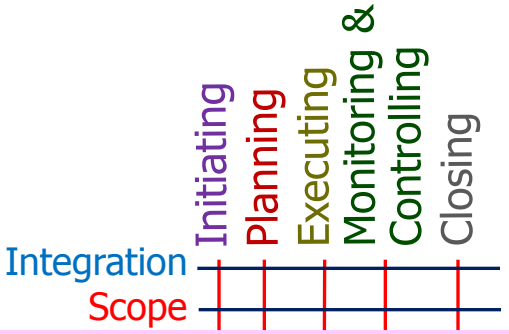
- Input:
  - Schedule management plan
  - Activity list
  - Activity attributes
  - Resource calendars
  - Risk register
  - Activity cost estimates
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Expert judgement
  - Alternative analysis
  - Published estimating data
  - Bottom-up estimating
  - Project management software
- Output:
  - Activity resource requirements
  - Resource breakdown structure
  - Project documents updates

Time Mgmt / Planning Process Group
6.5 Estimate Activity Durations



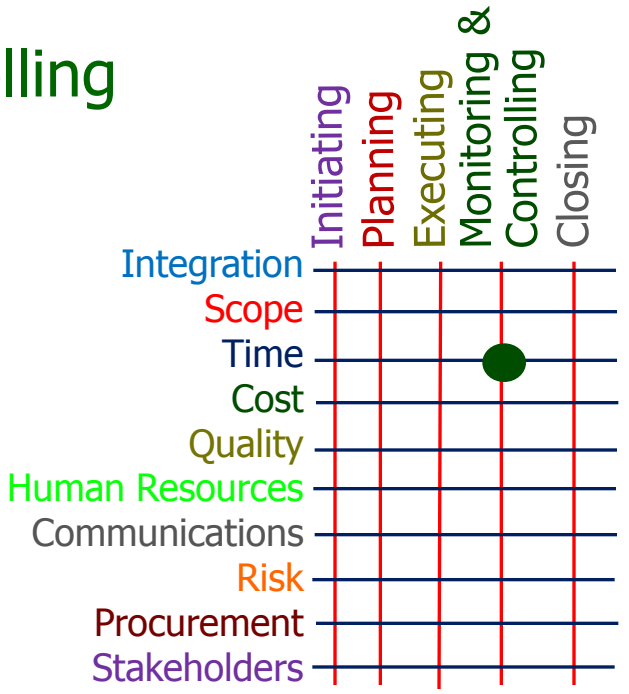
- Input:
  - Schedule management plan
  - Activity list
  - Activity attributes
  - Activity resource requirements
  - Resource calendars
  - Project scope statement
  - Risk register
  - Resource breakdown structure
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Expert judgement
  - Analogous estimating
  - Parametric estimating
  - Three-point estimating
  - Group decision-making techniques
  - Reserve analysis
- Output:
  - Activity duration estimates
  - Project document updates

Time Mgmt / Planning Process Group
6.6 Develop Schedule



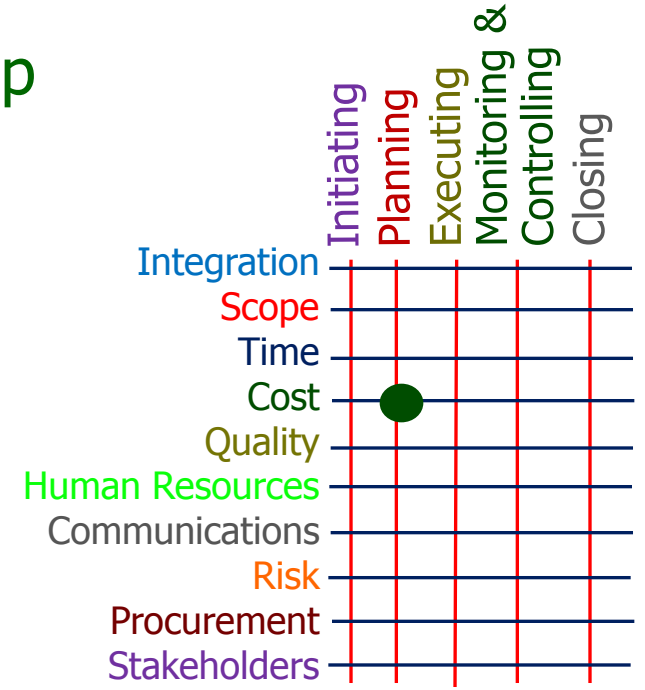
- Input:
  - Schedule management plan
  - Activity list
  - Activity attributes
  - Project schedule network diagrams
  - Activity resource requirements
  - Resource calendars
  - Activity duration estimates
  - Project scope statement
  - Risk register
  - Project staff assignments
  - Resource breakdown 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



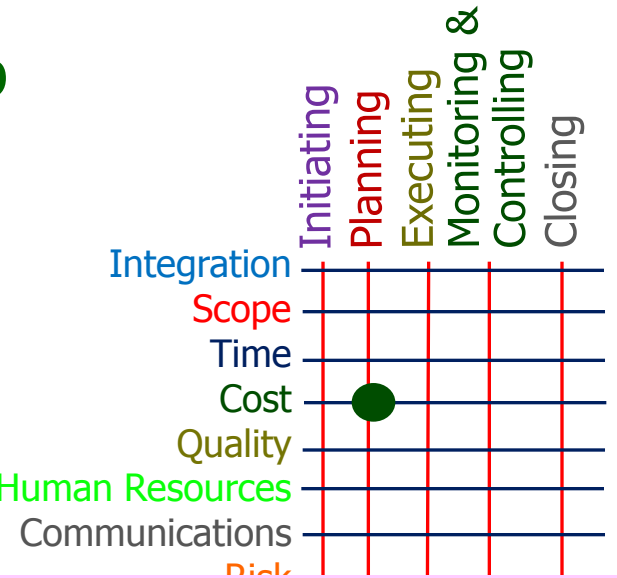
- Input:
  - Project management plan
  - Project schedule
  - Work performance data
  - Project calendars
  - Schedule data
  - Organizational process assets
- Tools & Techniques
  - Performance reviews
  - Project management software
  - Resource optimization techniques
  - Modeling techniques
  - Leads 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



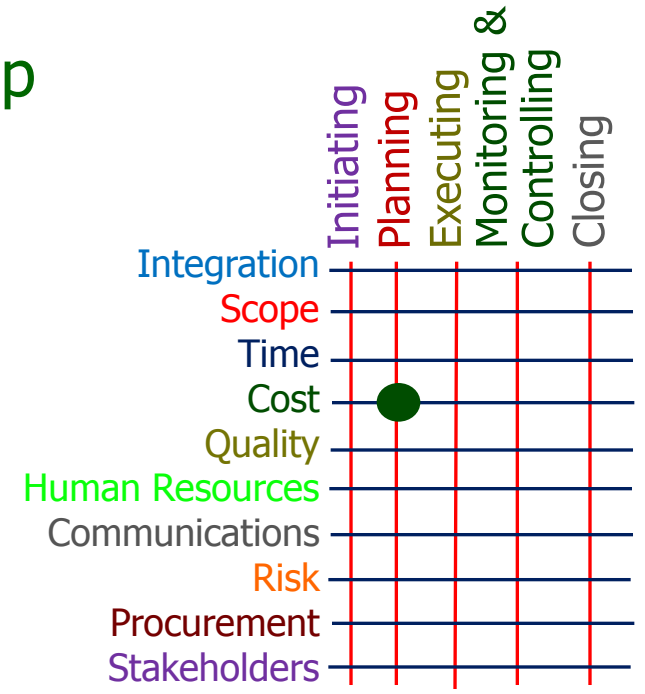
- Input:
  - Project management plan
  - Project charter
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Expert judgement
  - Analytical techniques
  - Meetings
- Output:
  - Cost management plan

Cost Mgmt / Planning Process Group
7.2 Estimate Costs



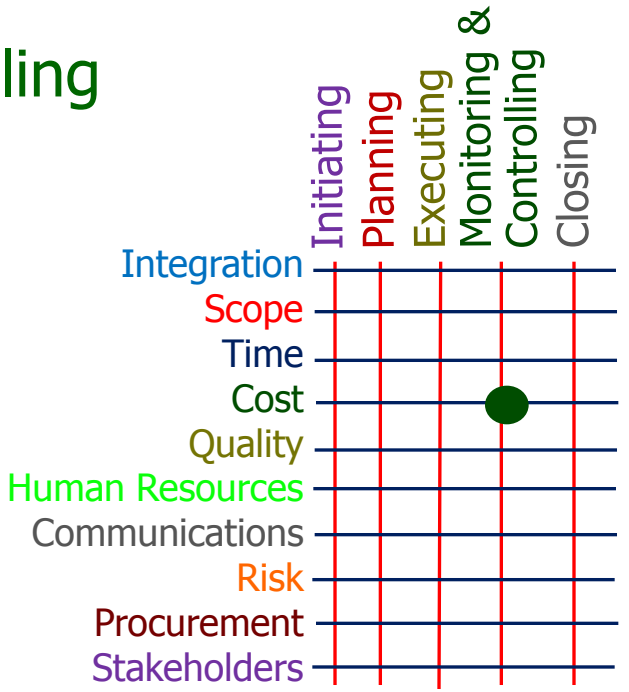
- **Input:**
  - Cost management plan
  - Human resource management plan
  - Scope baseline
  - Project schedule
  - Risk register
  - Enterprise environmental factors
  - Organizational process assets
- **Output:**
  - Activity cost estimates
  - Basis of estimates
  - Project documents updates
- **Tools & 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



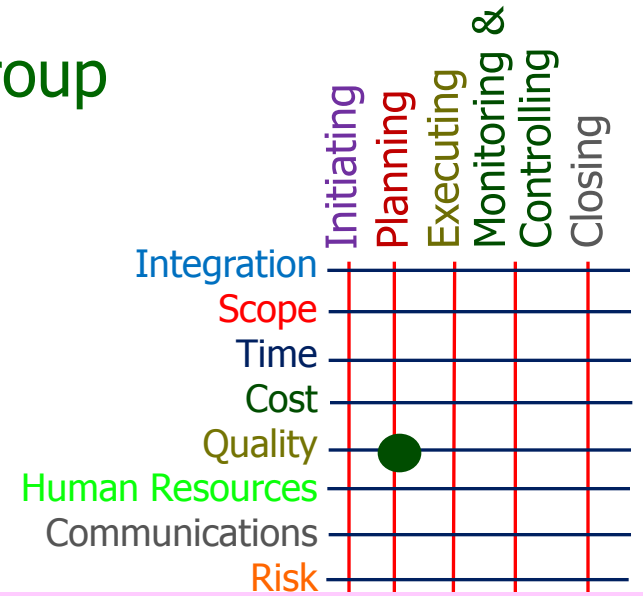
- Input:
  - Cost management plan
  - Scope baseline
  - Activity cost estimates
  - Basis of estimates
  - Project schedule
  - Resource calendars
  - Risk register
  - Agreements
  - Organization process assets
- Output:
  - Cost baseline
  - Project funding requirements
  - Project documents updates
- Tools & Techniques
  - Cost aggregation
  - Reserve analysis
  - Expert judgement
  - Historical relationships
  - Funding limit reconciliation

Cost Mgmt / Monitoring and Controlling
7.4 Control Costs



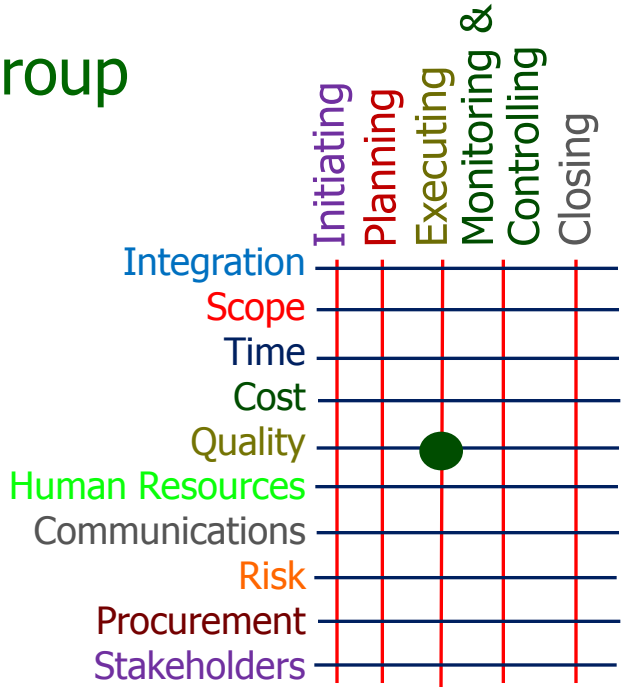
- **Input:**
  - Project management plan
  - Project funding requirements
  - Work performance data
  - Organizational process assets
- **Tools & Techniques**
  - Earned value management
  - Forecasting
  - To-complete performance index (TCPI)
  - Performance reviews
  - Project management software
  - Reserve analysis
- **Output:**
  - Work performance information
  - Cost forecasts
  - Change requests
  - Project management plan updates
  - Project documents updates
  - Organization process assets updates

Quality Mgmt / Planning Process Group
8.1 Plan Quality Management



- 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

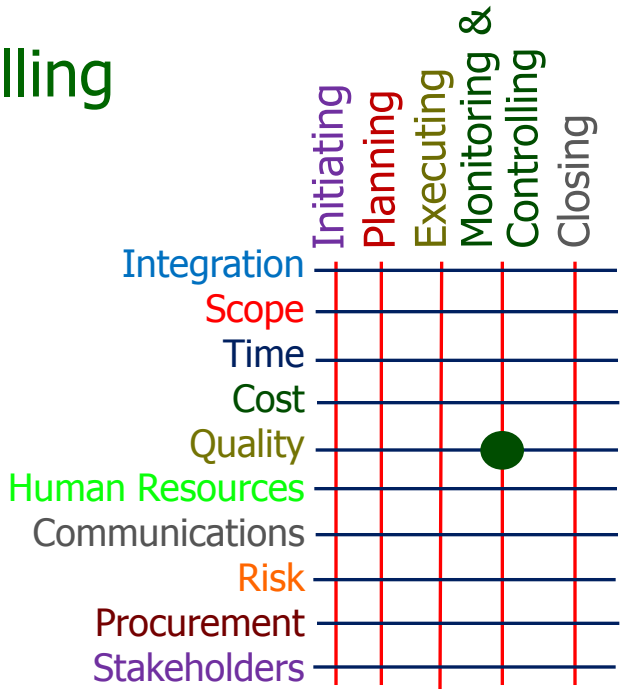
Quality Mgmt / Executing Process Group
8.2 Perform Quality Assurance



- 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

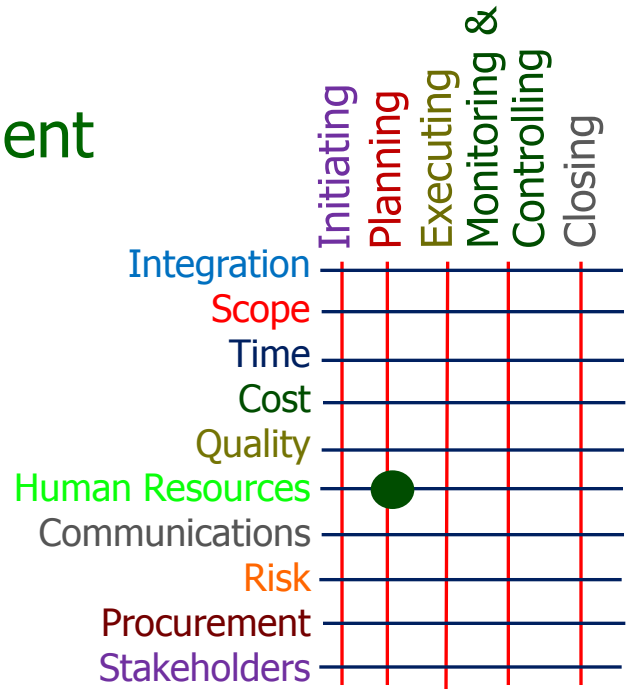
- Tools & Techniques
  - Quality management and control tools
  - Quality audits
  - Process analysis

Quality Mgmt / Monitoring & Controlling
8.3 Control Quality



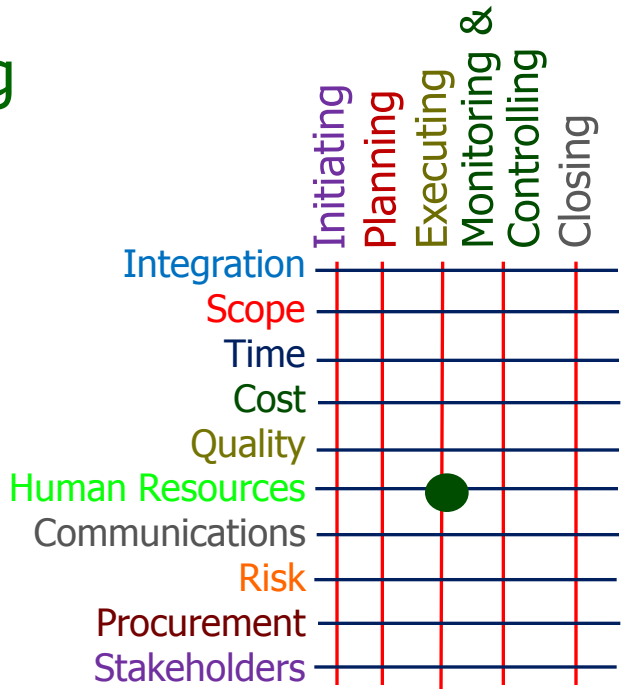
- **Input:**
  - Project management plan
  - Quality metrics
  - Quality checklists
  - Work performance data
  - Approved change requests
  - Deliverables
  - Project documents
  - Organizational process assets
- **Tools & Techniques**
  - Seven basic quality tools
  - Statistical sampling
  - Inspection
  - 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



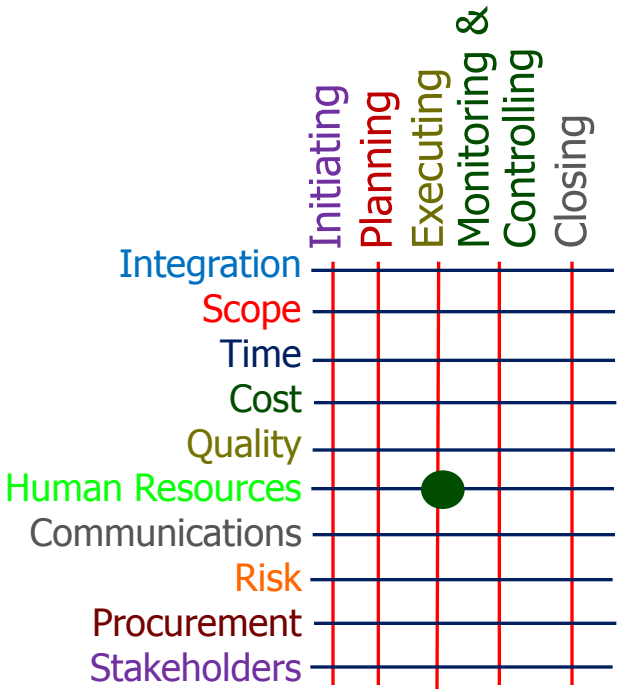
- Input:
  - Project Management Plan
  - Activity resource requirements
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Organisational charts and position descriptions
  - Networking
  - Organizational theory
  - Expert judgement
  - Meetings
- Output:
  - Human resource management plan

Human Resources Mgmt / Executing
9.2 Acquire Project Team



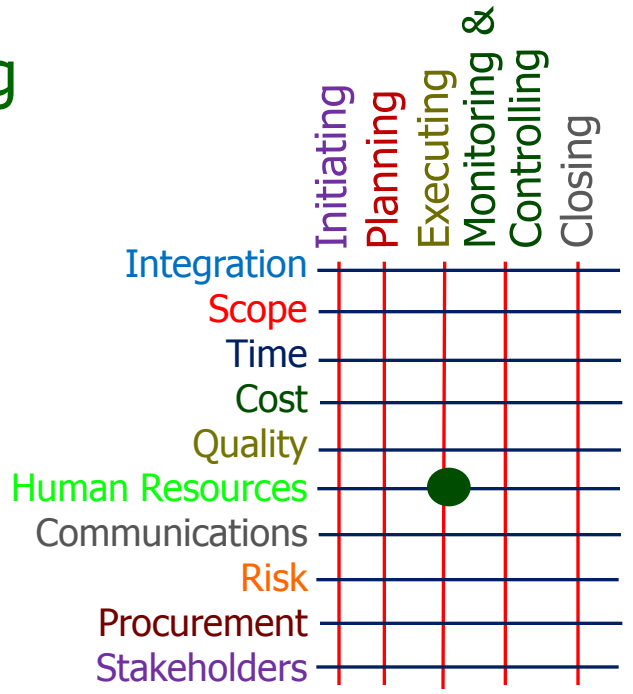
- Input:
  - Human resources management plan
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Pre-assignment
  - Negotiation
  - Acquisition
  - Virtual Teams
  - Multi-criteria decision analysis
- Output:
  - Project staff assignments
  - Resource calendars
  - 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

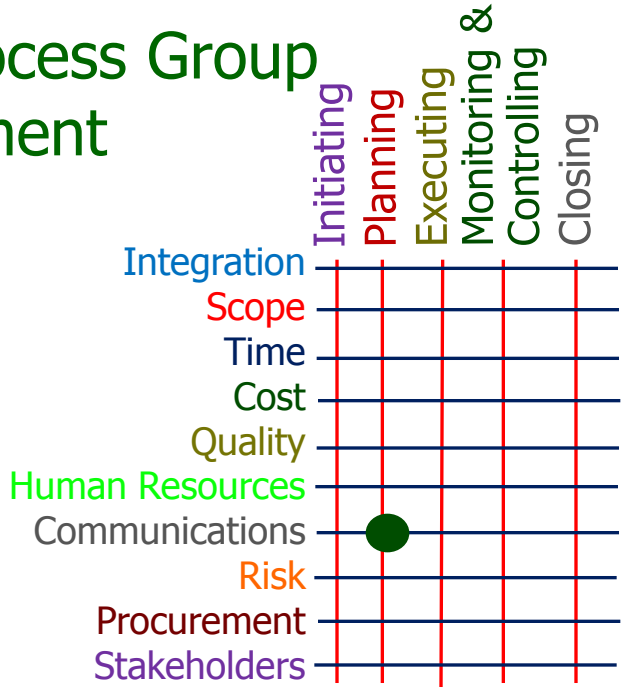


- **Input:**
  - Human resource management plan
  - Project staff assignments
  - Team performance assessments
  - Issue log
  - Work performance reports
  - Organizational process assets

- **Tools & Techniques**
  - Observation and conversation
  - Project performance appraisals
  - Conflict management
  - Interpersonal skills

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

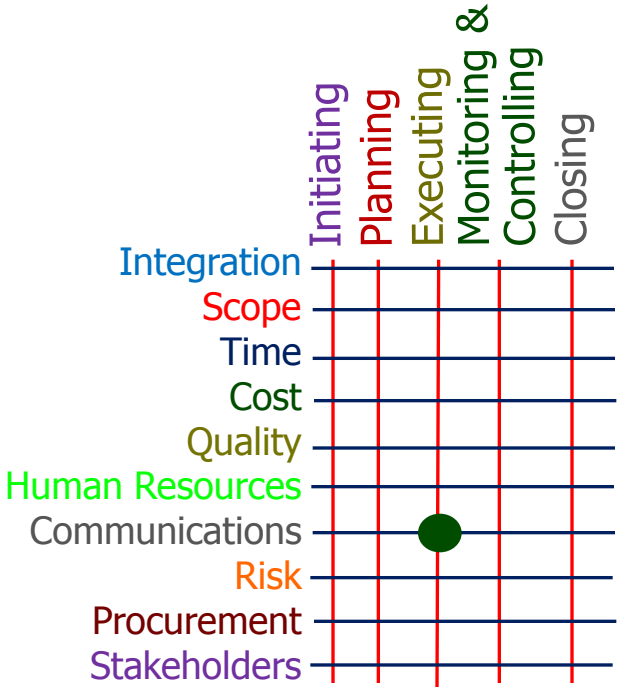
Communication Mgmt / Planning Process Group
10.1 Plan Communications Management



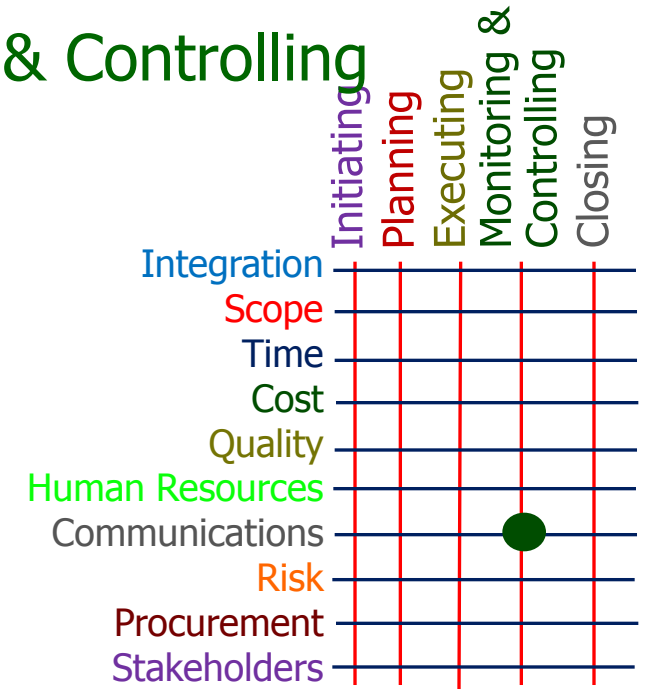
- Input:
  - Project management plan
  - Stakeholder register
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Communications requirement analysis
  - Communications technology
  - Communication models
  - Communication methods
  - Meetings
- Output:
  - 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

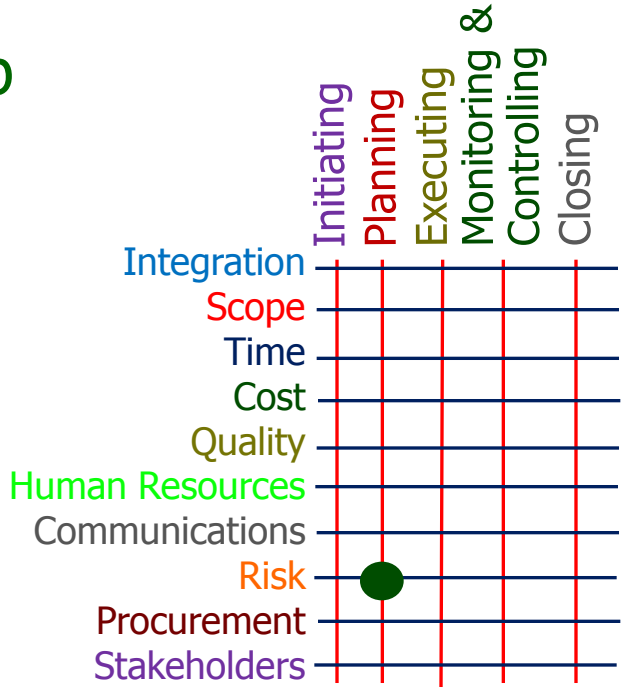


Communications Mgmt / Monitoring & Controlling
10.3 Control Communications



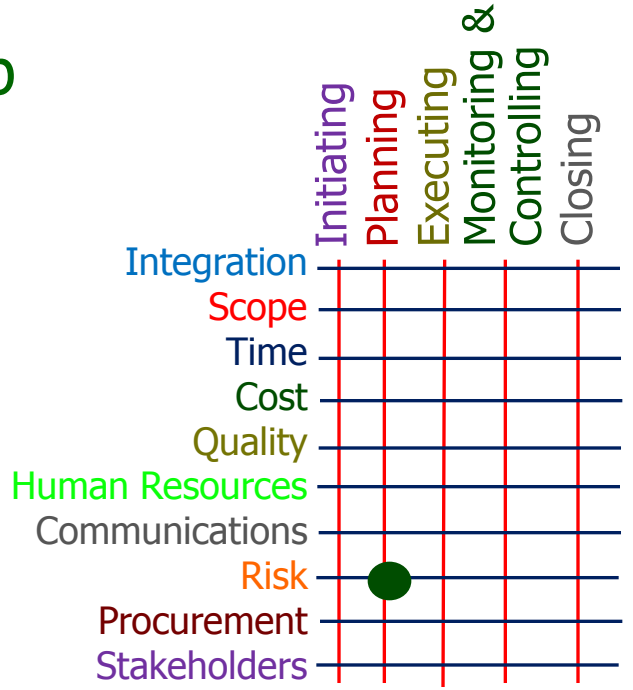
- Input:
  - Project management plan
  - Project communications
  - Issue log
  - Work performance data
  - Organizational process assets
- Tools & Techniques
  - Information management systems
  - Expert judgement
  - Meetings
- Output:
  - Work performance information
  - Change requests
  - Project management plan updates
  - Project documents updates
  - Organizational process assets updates

Risk Mgmt / Planning Process Group
11.1 Plan Risk Management



- 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

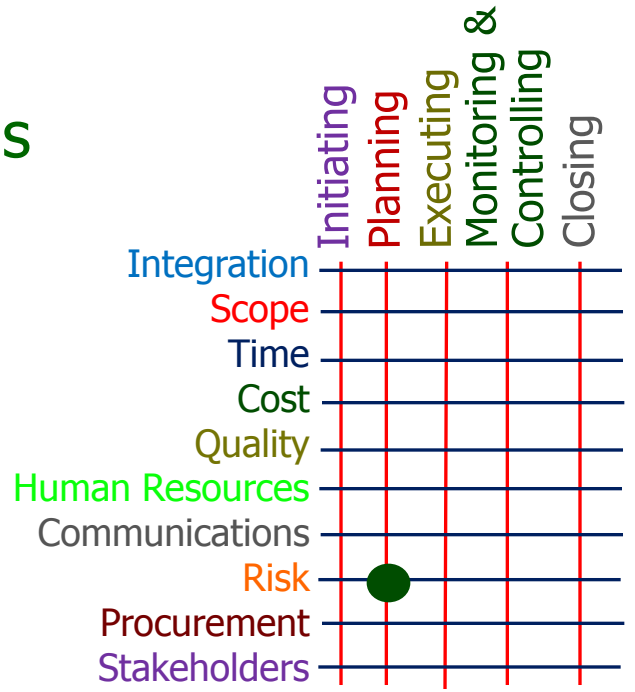
Risk Mgmt / Planning Process Group
11.2 Identify Risks



- **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

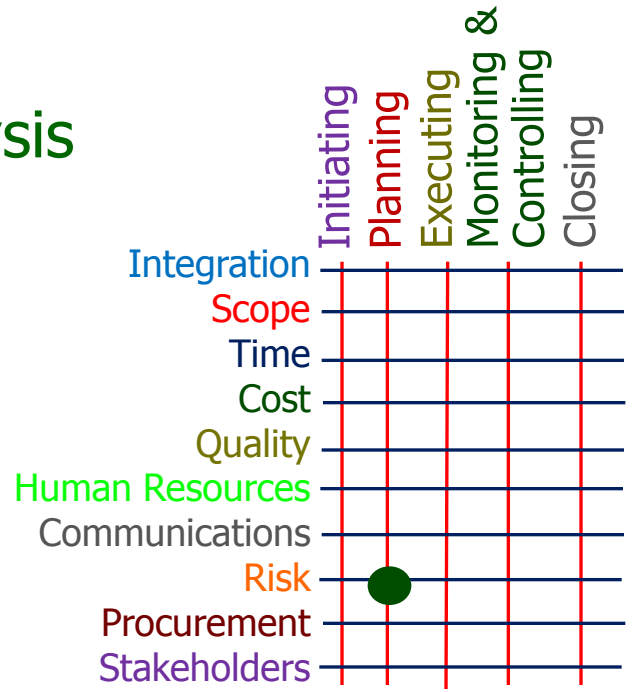
- **Tools & Techniques**
  - Documentation reviews
  - Information gathering techniques
  - Checklist analysis
  - Assumptions analysis
  - Diagramming techniques
  - SWOT analysis
  - Expert judgement

Risk Mgmt / Planning Process Group
11.3 Perform Qualitative Risk Analysis



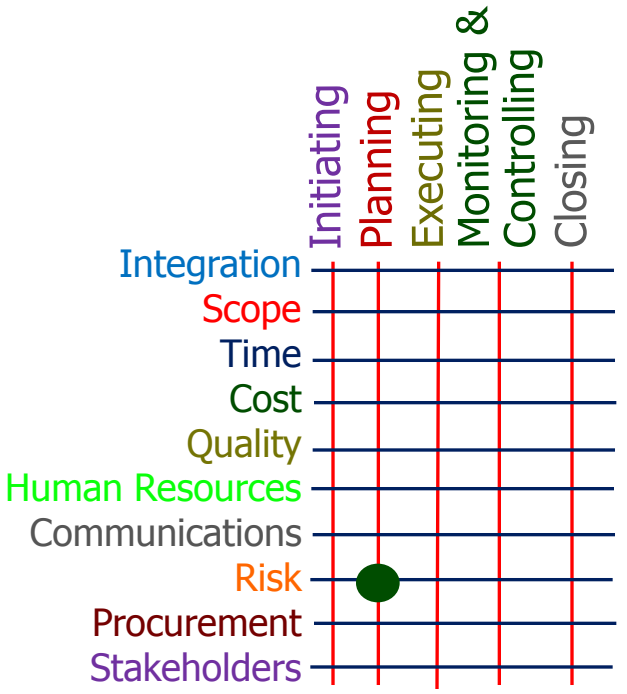
- Input:
  - Risk management plan
  - Scope baseline
  - Risk register
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Risk probability and impact assessment
  - Probability and impact matrix
  - Risk data quality assessment
  - Risk categorization
  - Risk urgency assessment
  - Expert judgement
- Output:
  - Project documents updates

Risk Mgmt / Planning Process Group
11.4 Perform Quantitative Risk Analysis



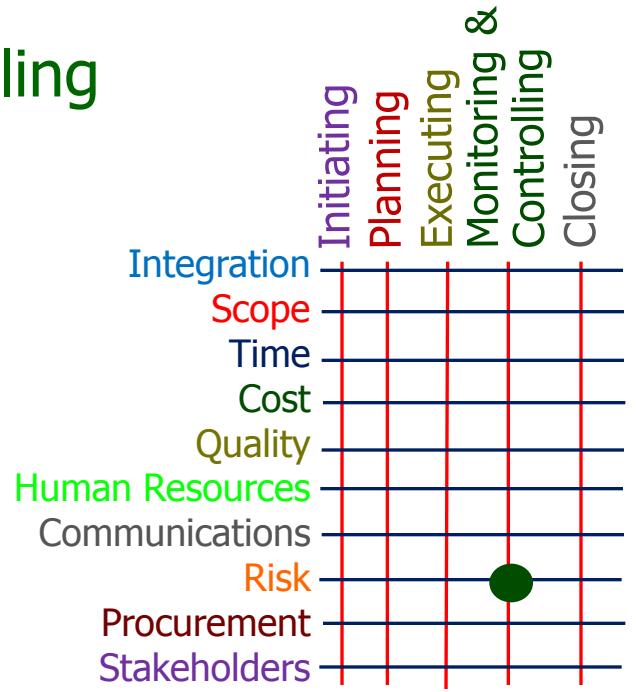
- Input:
  - Risk management plan
  - Cost management plan
  - Schedule management plan
  - Risk register
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Data gathering and representation techniques
  - Quantitative risk analysis and modeling techniques
  - 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

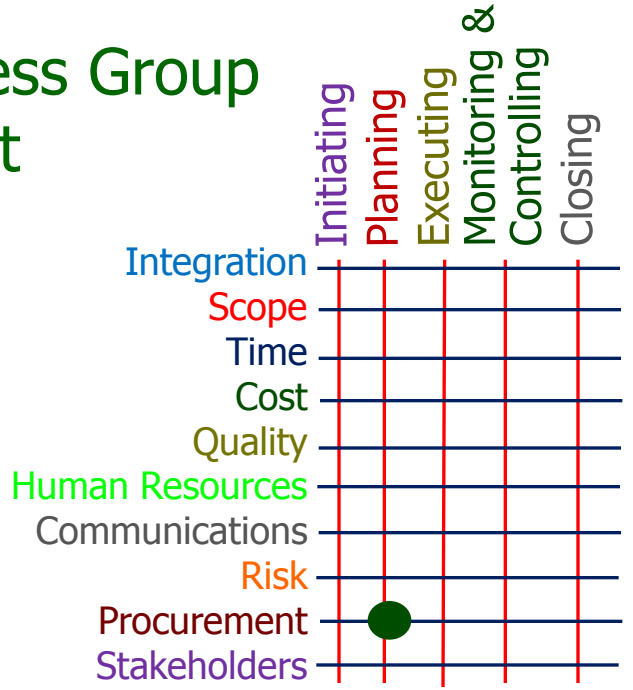


- **Input:**
  - Project management plan
  - Risk register
  - Work performance data
  - Work performance reports

- **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

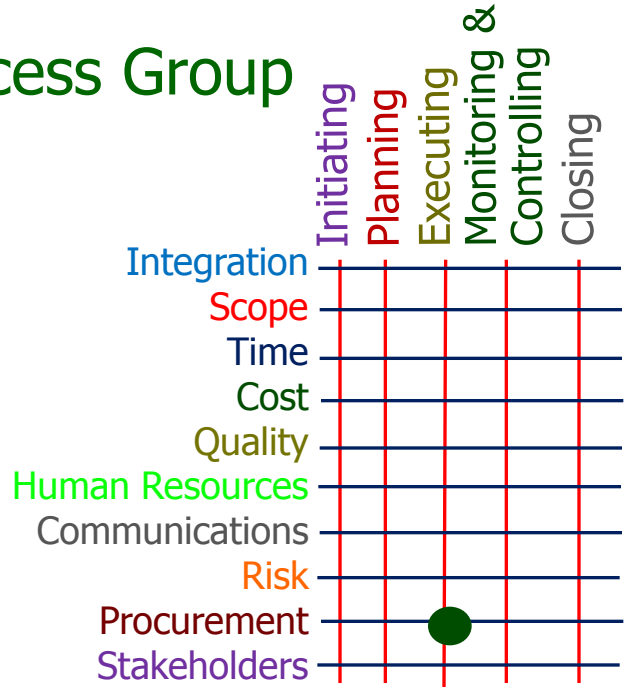
Procurement Mgmt / Planning Process Group
12.1 Plan Procurement Management



- **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

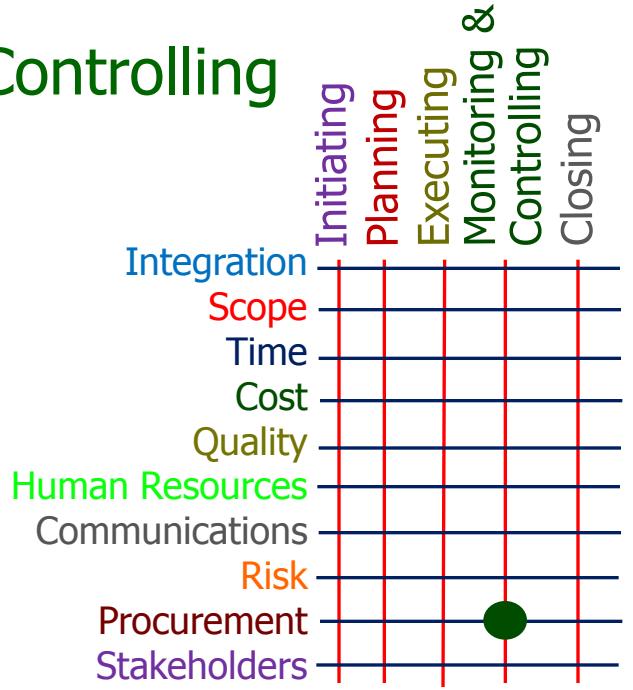
Procurement Mgmt / Executing Process Group
12.2 Conduct Procurements



- **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

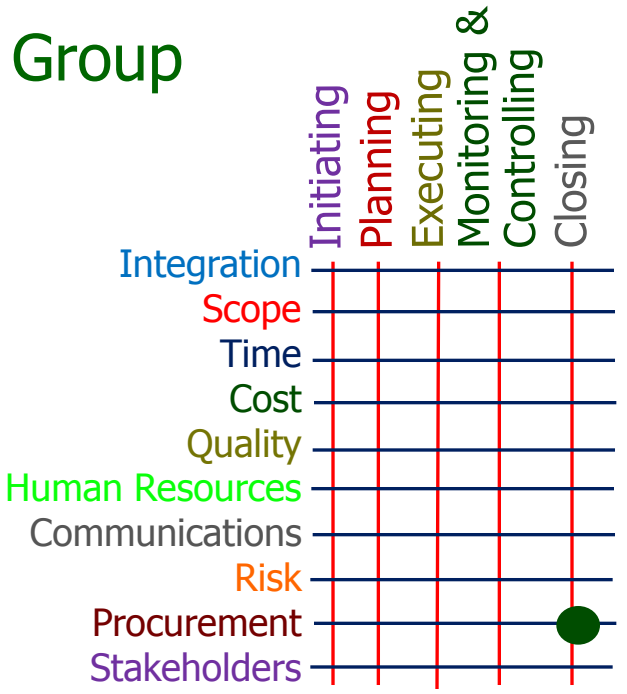
Procurement Mgmt / Monitoring & Controlling
12.3 Control Procurements



- **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

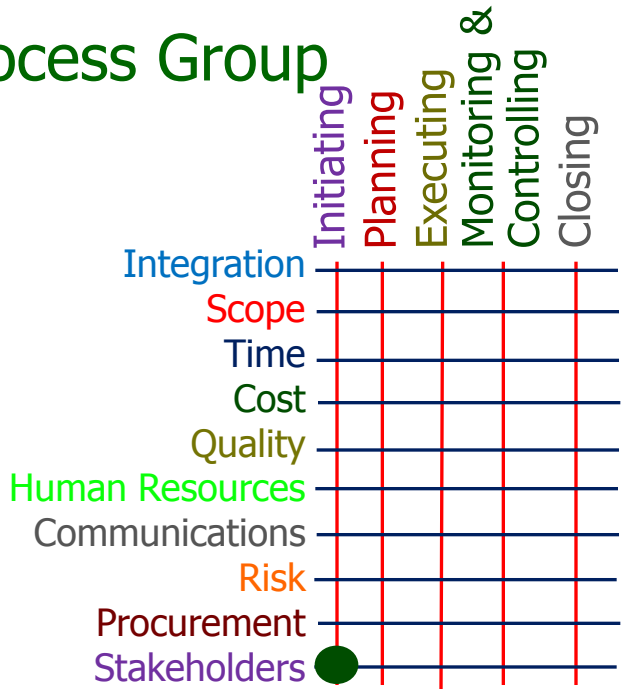
- **Tools & Techniques**
  - Contract change control system
  - Procurement performance reviews
  - Inspections and audits
  - Performance reporting
  - Payment systems
  - Claims administration
  - Records management system

Procurement Mgmt / Closing Process Group
12.4 Close Procurements



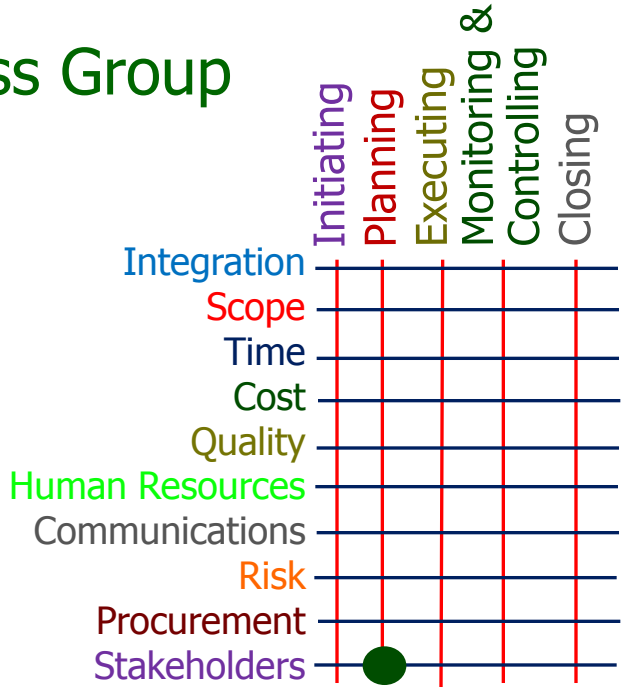
- Input:
  - Project management plan
  - Procurement documents
- Tools & Techniques
  - Procurement audits
  - Procurement negotiations
  - Records management system
- Output:
  - Closed procurements
  - Organizational process assets updates

Communication Mgmt / Initiating Process Group
13.1 Identify Stakeholders



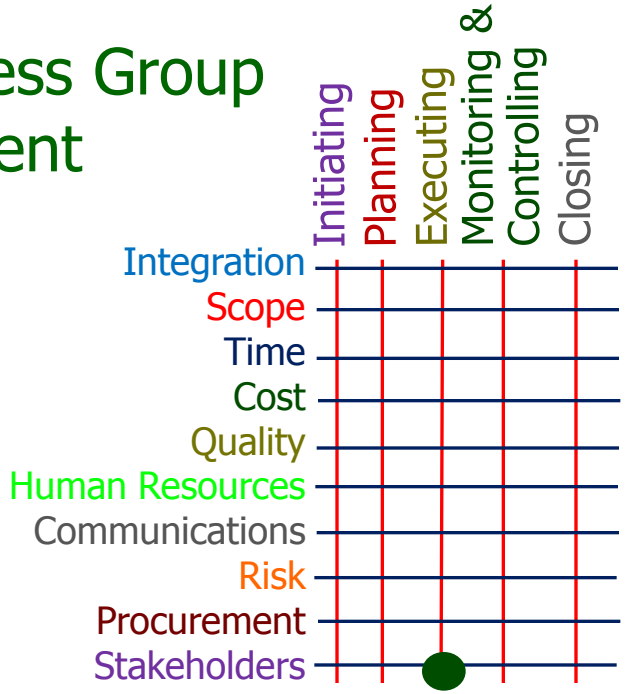
- Input:
  - Project charter
  - Procurement documents
  - Enterprise environmental factors
  - Organizational process assets
- Tools & Techniques
  - Stakeholder analysis
  - Expert judgement
  - Meetings
- Output:
  - Stakeholder register

Stakeholder Mgmt / Planning Process Group
13.2 Plan Stakeholder Management



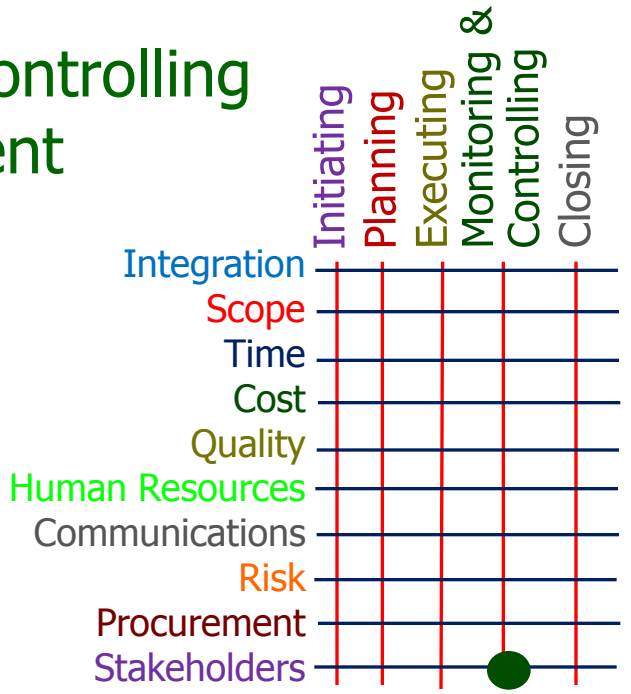
- Input:
  - Project management plan
  - Stakeholder register
  - Enterprise environmental factors
  - Organization process assets
- Tools & Techniques
  - Expert judgement
  - Meetings
  - Analytical techniques
- Output:
  - Stakeholder management plan
  - Project documents updates

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

How to read the slides

Knowledge Area

Process Group

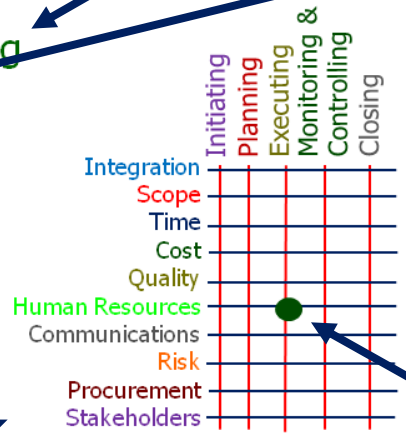
Process Name

Section of PMBOK®

Context

28

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

17/02/2013 22:55:08 28

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

The Inputs are often Outputs of other processes.