

# Figure - Links Among Process Groups in a Phase

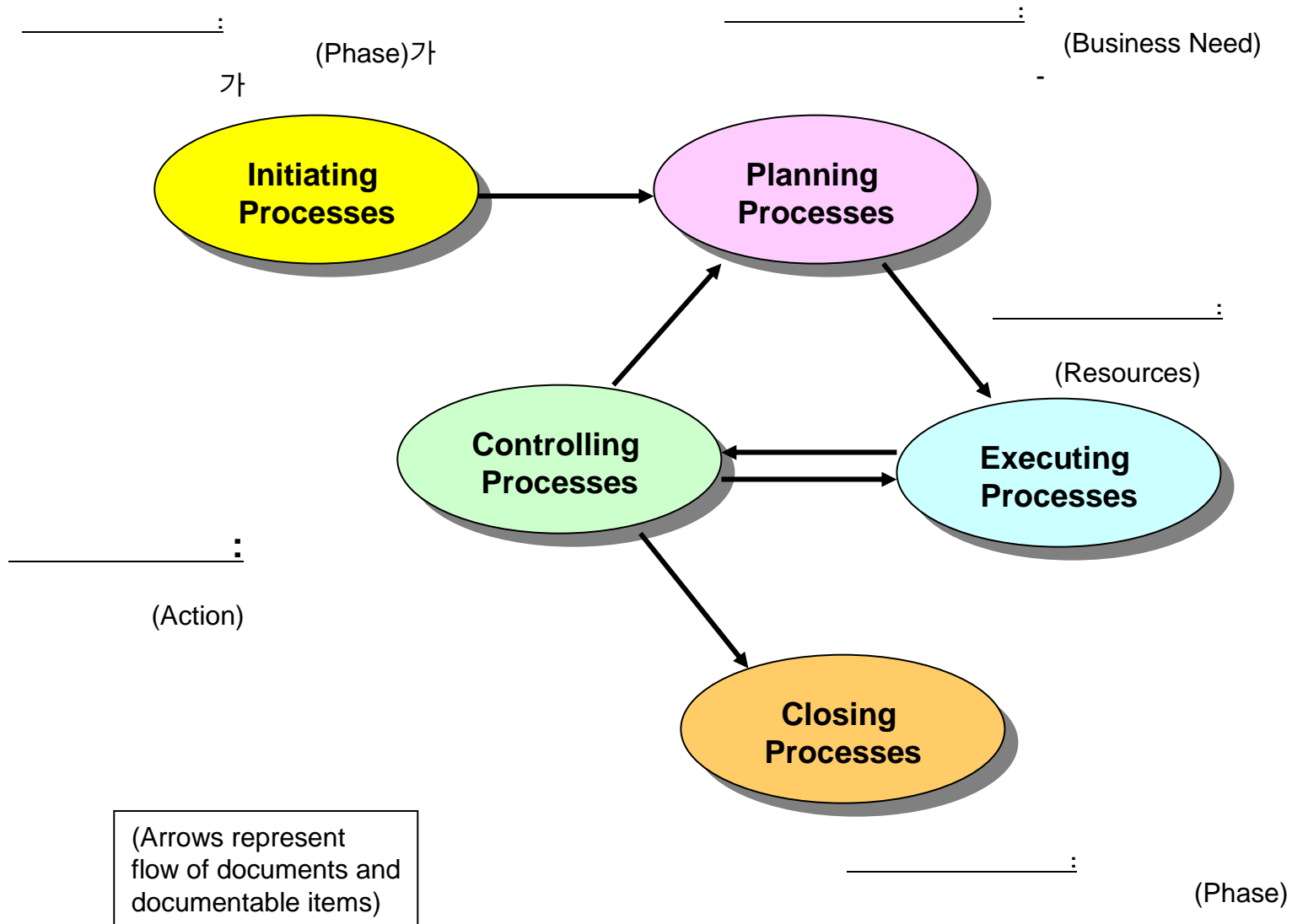
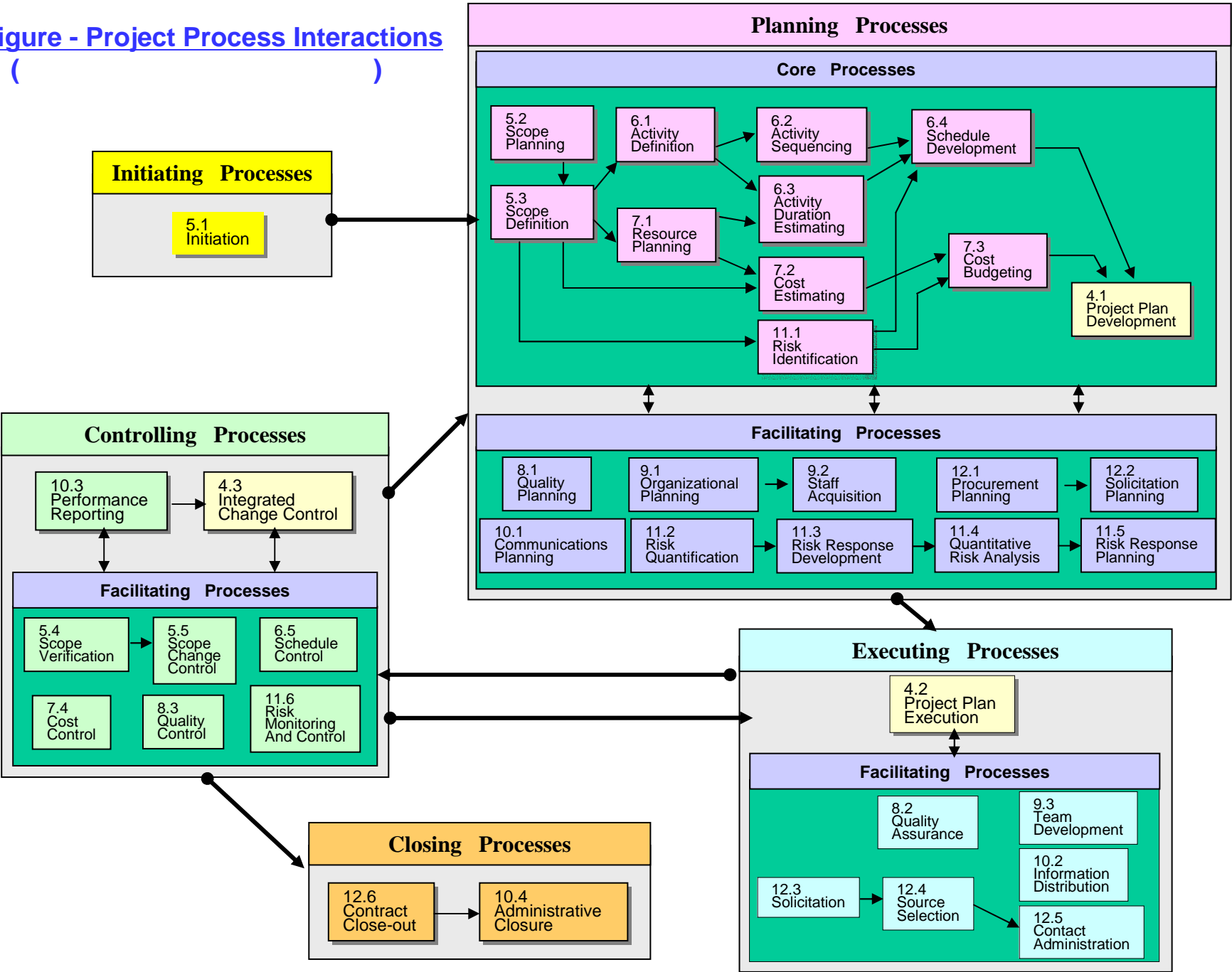


Figure - Project Process Interactions



# Initiating

**\*Inputs**  
 -Product Description  
 -Strategic Plan  
 -Project Selection Criteria  
 -Historical Information

**\*Tools and Techniques**  
 -Project Selection Methods  
 -Expert Judgment

## 5.1 Initiation

**\*Outputs**  
 1. Project Charter  
 2. Project Manager Identified / Assigned  
 3. Constraints  
 4. Assumptions

**\*Inputs**  
 -Product Description  
 -Project Charter  
 -Constraints  
 -Assumptions

**\*Tools and Techniques**  
 -Product Analysis  
 -Benefit / Cost Analysis  
 -Alternatives Identification  
 -Expert Judgment

## 5.2 Scope Planning

**\*Outputs**  
 1. Scope Statement  
 2. Supporting Detail  
 3. Scope Management Plan

**\*Inputs**  
 -Scope Statement  
 -Constraints  
 -Assumptions  
 -Other Planning Outputs  
 -Historical Information

## 5.3 Scope Definition

**\*Outputs**  
 1. Work Breakdown Structure (WBS)  
 2. Scope statement updates

**\*Tools and Techniques**  
 -Work breakdown structure Templates  
 -Decomposition

**\*Inputs**  
 -Work breakdown structure  
 -Scope Statement  
 -Historical Information  
 -Constraints  
 -Assumptions  
 -Expert judgment

## 6.1 Activity Definition

**\*Outputs**  
 1. Activity List  
 2. Supporting Detail  
 3. Work breakdown structure Updates

**\*Tools and Techniques**  
 -Decomposition  
 -Templates

**\*Tools and Techniques**  
 -Expert Judgment  
 -Alternatives Identification  
 -Project management software

**\*Inputs**  
 -Work breakdown structure  
 -Historical Information  
 -Scope Statement  
 -Resource Pool Description  
 -Organizational Policies  
 -Activity duration estimates

## 7.1 Resource Planning

**\*Outputs**  
 1. Resource Requirements

**\*Inputs**  
 -Activity List  
 -Constraints  
 -Assumptions  
 -Resource Requirements  
 -Resource Capabilities  
 -Historical Information  
 -Identified risks

## 6.3 Activity Duration Estimating

**\*Output**  
 1. Activity Duration Estimates  
 2. Basis of Estimates  
 3. Activity List Updates

**\*Tools and Techniques**  
 -Expert Judgment  
 -Analogous Estimating  
 -Quantitatively based durations  
 -Reserve time (contingency)

**\*Inputs**  
 -Work breakdown structure  
 -Resource Requirements  
 -Resource Rates  
 -Activity Duration Estimates  
 -Estimating publications  
 -Historical Information  
 -Chart of Accounts  
 -Risks

## 7.2 Cost Estimating

**\*Outputs**  
 1. Cost Estimates  
 2. Supporting Detail  
 3. Cost Management Plan

**\*Tools and Techniques**  
 -Analogous Estimating  
 -Parametric Modeling  
 -Bottom-up Estimating  
 -Computerized Tools  
 -Other cost estimating methods

**\*Inputs**  
 -Product charter  
 -Organization's risk management policies  
 -Defined roles and responsibilities  
 -Stakeholder risk tolerances  
 -Template for the organization's risk management plan  
 -Work breakdown structure (WBS)

## 11.1 Risk Management Planning

**\*Tools and Techniques**  
 -Planning meetings

**\*Outputs**  
 1. Risk management plan

# Planning

**\*Tools and Techniques**  
 -Precedence Diagramming Method (PDM)  
 -Arrow Diagramming Method (ADM)  
 -Conditional Diagramming Methods  
 -Network Templates

## 6.2 Activity Sequencing

**\*Outputs**  
 1. Project Network Diagrams  
 2. Activity List Updates

**\*Inputs**  
 -Activity List  
 -Product Description  
 -Mandatory Dependencies  
 -Discretionary Dependencies  
 -External Dependencies  
 -Milestones

**\*Inputs**  
 -Project Network Diagrams  
 -Activity Duration Estimates  
 -Resource Requirements  
 -Resource Pool Description  
 -Calendars  
 -Constraints  
 -Assumptions  
 -Leads and Lags  
 -Risk management plan  
 -Activity attributes

## 6.4 Schedule Development

**\*Outputs**  
 1. Project Schedule  
 2. Supporting Detail  
 3. Schedule management Plan Updates  
 4. Resource Requirements Updates

**\*Tools and Techniques**  
 -Mathematical Analysis  
 -Duration Compression  
 -Simulation  
 -Resource Leveling Heuristics  
 -Project Management Software  
 -Coding structure

**\*Tools and Techniques**  
 -Cost budgeting tools and Techniques

## 7.3 Cost Budgeting

**\*Outputs**  
 1. Cost Baseline

**\*Inputs**  
 -Cost Estimates  
 -Work breakdown structure  
 -Project Schedule  
 -Risk management plan

**\*Inputs**  
 -Other Planning Outputs  
 -Historical Information  
 -Organizational Policies  
 -Constraints  
 -Assumptions

## 4.1 Project Plan Development

**\*Outputs**  
 1. Project Plan  
 2. Supporting Detail

**\*Tools and Techniques**  
 -Project Planning methodology  
 -Stakeholder Skills & Knowledge  
 -Project Management Information System (PMIS)  
 -Earned value management (EVM)

# Core Process

# Planning Core Process

## Planning

## Facilitating Process

*\*Inputs*  
-Quality Policy  
-Scope Statement  
-Product Description  
-Standard & Regulations  
-Other Process Outputs

### 8.1 Quality Planning

*\*Tools and Techniques*  
-Benefit / Cost Analysis  
-Benchmarking  
-Flow-charting  
-Design Experiments  
-Cost of quality

*\*Outputs*  
1. Quality Management Plan  
2. Operational Definitions  
3. Checklists  
4. Inputs to Other Processes

*\*Inputs*  
-Project Interfaces  
-Staffing Requirements  
-Constraints

### 9.1 Organizational Planning

*\*Tools and Techniques*  
-Templates  
-Human Resource Practices  
-Organizational theory  
-Stakeholder Analysis

*\*Outputs*  
1. Role & Responsibility Assignments  
2. Staffing management Plan  
3. Organization Chart  
4. Supporting Detail

*\*Inputs*  
-Staffing management Plan  
-Staffing Pool Description  
-Recruitment Practices

### 9.2 Staff Acquisition

*\*Tools and Techniques*  
1. Negotiations  
2. Pre-assignment  
3. Procurement

*\*Outputs*  
1. Project Staff Assigned  
2. Project Team Directory

*\*Input*  
-Scope Statement  
-Product Description  
-Procurement Resource  
-Market Conditions  
-Other Planning Outputs  
-Constraints  
-Assumptions

### 12.1 Procurement Planning

*\*Tools*  
-Make-or-Buy Analysis  
-Expert Judgment  
-Contract Type Selection

*\*Input*  
-Procurement Management Plan  
-Statement(s) of Work  
-Other Planning Outputs

### 12.2 Solicitation Planning

*\*Tools*  
-Standard Forms  
-Expert Judgment

*\*Output*  
1. Procurement Management Plan  
2. Statement(s) of Work

*\*Output*  
1. Procurement Documents  
2. Evaluation Criteria  
3. Statement of Work Updates

*\*Inputs*  
-Communications Requirements  
-Communications Technology  
-Constraints  
-Assumptions

### 10.1 Communications Planning

*\*Tools and Techniques*  
-Stakeholder Analysis

*\*Outputs*  
1. Communications Management Plan

*\*Inputs*  
-Risk management plan  
-Project planning outputs  
-Risk categories  
-Historical information

### 11.2 Risk Identification

*\*Outputs*  
1. Risks  
2. Triggers  
3. Inputs to other processes

*\*Tools and Techniques*  
-Documentation reviews  
-Information-gathering techniques  
-Checklists  
-Assumptions analysis  
-Diagramming techniques

*\*Inputs*  
-Risk management plan  
-Identified risks  
-Project status  
-Project type  
-Data precision  
-Scales of probability and impact  
-Assumptions

### 11.3 Qualitative Risk Analysis

*\*Tools and Techniques*  
-Risk probability and impact  
-Probability/impact risk rating matrix  
-Project assumptions testing  
-Data precision ranking

*\*outputs*  
1. Overall risk ranking for the project  
2. List of prioritized risks  
3. List of risks for additional analysis and management  
4. Trends in qualitative risk analysis results

*\*Tools and Techniques*  
-Interviewing  
-Sensitivity analysis  
-Decision tree analysis  
-Simulation

### 11.4 Qualitative Risk Analysis

*\*Input*  
-Risk management plan  
-Identified risks  
-List of prioritized risks  
-List of risks for additional analysis and management  
-Historical information  
-Expert judgment  
-Other planning outputs

*\*outputs*  
1. Prioritized list of quantified risks  
2. Probabilistic analysis of the project  
3. Probability of achieving the cost and time objectives  
4. Trends in quantitative risk analysis results

*\*Inputs*  
-Risk management  
-List of prioritized risks  
-Risk ranking of the project  
-Prioritized list of quantified risks  
-Probabilistic analysis of the project  
-Probability of achieving the cost and time objectives  
-List of potential responses  
-Risk thresholds  
-Risk owners  
-Common risk causes  
-Trends in qualitative and quantitative risk analysis results

*\*Tools and Techniques*  
-Avoidance  
-Transference  
-Mitigation  
-Acceptance

### 11.5 Risk Response Planning

*\*outputs*  
1. Risk response plan  
2. Residual risks  
3. Secondary risks  
4. Contractual agreements  
5. Contingency reserve amounts needed  
6. Inputs to other processes  
7. Inputs to a revised project plan

# Executing

## Core

### \*Inputs

- Project Plan
- Supporting Detail
- Organizational Policies
- Preventive action
- Corrective Action

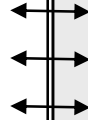
### 4.2 Project Plan Execution

### \*Outputs

1. Work Results
2. Change Requests

### \*Tools and Techniques

- General Management Skills
- Product Skills & Knowledge
- Work Authorization System
- Status Review Meetings
- Project Management Information System (PMIS)
- Organizational Procedures



### \*Inputs

- Project Staff
- Project plan
- Staffing management Plan
- Performance Reports
- External Feedback

## Facilitating

### 9.3 Team Development

### \*Outputs

1. Performance Improvements
2. Input to Performance Appraisals

### \*Tools and Techniques

- Team-Building Activities
- General Management Skills
- Reward and Recognition Systems
- Collocation
- Training

### \*Inputs

- Quality Management Plan
- Results of Quality Control Measurements
- Operational Definitions

### 8.2 Quality Assurance

### \*Outputs

1. Quality Improvement

### \*Tools and Techniques

- Quality Planning Tools and Techniques
- Quality Audits

### \*Inputs

- Work Results
- Communication Management Plan
- Project Plan

### 10.2 Information Distribution

### \*Outputs

1. Project records
2. Project reports
3. Project presentations

### \*Tools and Techniques

- Communications Skills
- Information Retrieval System
- Information Distribution methods

### \*Inputs

- Procurement Documents
- Qualified Seller Lists

### 12.3 Solicitation

### \*Outputs

1. Proposals

- Bidders Conferences
- Advertising

### \*Inputs

- Proposals
- Evaluation Criteria
- Organizational Policies

### 12.4 Source Selection

### \*Outputs

1. Contract

- Contract Negotiation
- Weighting System
- Screening System
- Independent Estimates

### \*Inputs

- Contract
- Work Results
- Change Requests
- Seller Invoices

### 12.5 Contract Administration

### \*Outputs

1. Correspondence
2. Contract Changes
3. Payment Requests

- Contract Change Control System
- Performance Reporting
- Payment System

# Controlling

## Core

### *\*Tools and Techniques*

- Performance Reviews
- Variance Analysis
- Trend analysis
- Earned value analysis
- Information distribution Tools and Techniques

- \*Inputs*
- Project Plan
  - Work Results
  - Other Project Records

10.3  
Performance  
Reporting

- \*Outputs*
1. Performance Reports
  2. Change Requests

### *\*Tools and Techniques*

- Change Control System
- Configuration Management
- Performance Measurement
- Additional Planning
- Project Management Information System (PMIS) \*

- \*Inputs*
- Project Plan
  - Performance Reports
  - Change Requests

4.3  
Integrated Change  
Control

- \*Outputs*
1. Project Plan Updates
  2. Corrective Action
  3. Lessons Learned

## Facilitating

- \*Inputs*
- Work Results
  - Product Documentation
  - Work breakdown structure
  - Scope statement
  - Project plan

5.4  
Scope  
Verification

- \*Tools and Techniques*
- Inspection

- \*Inputs*
- Work Breakdown Structure
  - Performance Reports
  - Change Requests
  - Scope management Plan

5.5  
Scope Change  
Control

- \*Tools and Techniques*
- Scope Change Control System
  - Performance Measurement
  - Additional Planning

- \*Outputs*
1. Scope Change
  2. Corrective Action
  3. Lessons Learned

- \*Inputs*
- Project Schedule
  - Performance Reports
  - Change Requests
  - Schedule management Plan

6.5  
Schedule  
Control

- \*Tools and Techniques*
- Schedule Change Control System
  - Performance Measurement
  - Additional Planning
  - Project Management Software
  - Variance analysis

- \*Outputs*
1. Schedule Updates
  2. Corrective Action
  3. Lessons Learned

- \*Inputs*
- Cost Baseline
  - Performance Reports
  - Change Requests
  - Cost Management Plan

7.4  
Cost  
Control

- \*Tools and Techniques*
- Cost Change Control System
  - Performance Measurement
  - Earned value management (EVM)
  - Additional Planning
  - Computerized Tools

- \*Outputs*
1. Revised Cost Estimates
  2. Budget Updates
  3. Corrective Action
  4. Estimates at Completion
  5. Project closeout
  6. Lessons Learned

- \*Inputs*
- Work Results
  - Quality Management Plan
  - Operational Definitions
  - Checklists

8.3  
Quality  
Control

- \*Tools and Techniques*
- Inspection
  - Control Charts
  - Pareto Diagrams
  - Statistical Sampling
  - Flow-charting
  - Trend Analysis

- \*Outputs*
1. Quality Improvement
  2. Acceptance Decisions
  3. Rework
  4. Completed Checklists
  5. Process Adjustments

- \*Inputs*
- Risk management plan
  - Risk response plan
  - Project communication
  - Additional risk identification and analysis
  - Scope changes

11.6  
Risk  
Monitoring  
and Control

- \*Tools and Techniques*
- Project risk response audits
  - Periodic project risk reviews
  - Earned value analysis
  - Technical performance measurement
  - Additional risk response planning

- \*Outputs*
1. Workaround plans
  2. Corrective action
  3. Project change requests
  4. Updates to the risk response plan
  5. Risk database
  6. Updates to risk identification checklists

# Closing

## Core

