Managing IT Projects

Chapter 2
The PMI Framework

The PMI Framework

The Project Management Institute ,USA is an internationally acclaimed organization Devoted to Creation & sharing of knowledge in the area of project management

The Project Management Book of knowledge (PMBOK) provides a very Structured model into knowledge areas

To make easy to understand the PMBOK is divided into 9 knowledge areas

These are: Cont….

The PMI Framework

Project scope management
Project Time management
Project cost management
Project Quality Management
Project Human Resource management
Project communication management
Project risk management
Project Procurement Management
Project Integration Management

The PMI Framework

For each of these knowledge areas it provides a very structured model in the form of Input, Processes, Output I.e
What are the inputs required ?
What is the process of transforming input to desired outputs?
What specific outputs are expected from the knowledge areas?
The next slides show snapshots of the PMI framework

Project Management

Integration Management

Plan Development
Plan Execution
Overall change control

Scope Management

Initiation
Planning & definition
Verification
change control

Time Management

Activity Definition
‘’ Sequencing
‘’ Duration Estimation
Schedule Control & development

Cost Management

Resource planning
Estimating
Budgeting & Control

Quality Management

Planning
Assurance
Control

HR Management

Organization Planning
Staff acquisition
Team development

Communication Management

Planning
Information Distribution
Performance reporting
Administrative closure

Risk Management

Identification
Quantification
Response development & control

Procurement Management

Procurement Planning
Solicitation Planning
Source selection
Contact administration

Project Integration Management

Project Plan Development

1 Inputs
- Other planning output
- Historical information
- Organizational policies
- Constraints
- Assumptions

2 Tools & techniques
- Project planning methodology
- Stakeholder skills and knowledge
- Project management information system

3 Outputs
- Project plan
- Supporting details

Project Plan Execution

1 Inputs
- Project Plan
- Supporting Details
- Organizational policies
- Corrective Actions

2Tools & techniques
- General management Skills
- Product skills & knowledge
- Status review meetings
- Work Authorization System
- PM Information Systems
- Organizational procedures.

3 Outputs
- Work Results
- Change requests

Overall change control

1 Inputs
- Project Plan
- Change requests
- Performance Report

2Tools & techniques
- Change Control system
- PM Information Systems
- Configuration Management
- Additional Planning
- Performance measurement

3 Outputs
- Project Plan
- Performance report
- Change request

Project Scope Management

Initiation

1 Inputs
- Product Description
- Strategic plan
- Project selection criteria
- Historical information

2 Tools & techniques
- Project Selection methods
- Expert judgments

3 Outputs
- Project Plan
- Supporting Details

Scope Planning

1 Inputs
- Project Charter
- Assumptions
- Constraints
- Corrective action

2 Tools & techniques
- Product Analysis
- Expert judgment
- Benefit analysis
- Alternative identification

3 Outputs
- Scope Statement
- Supporting details
- Management plan

Scope Definition

1 Inputs
- Statement
- Assumptions
- Constraints
- Other planning output
- Historical identification

2Tools & techniques
- Work break down structure template
- Decomposition

3 Outputs
- Work breakdown Structure

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Project Scope Management

Scope Verification

1 Inputs

- Product Documentation
- Work Results

2 Tools & techniques

- Inspection

3 Outputs

- Formal acceptance

Scope Change Control

1 Inputs

- Performance report
- Change requests
- Change request
- Scope Management plan

2 Tools & techniques

- Change control systems
- Performance measurement
- Additional planning

3 Outputs

- Scope Changes

2) Corrective Action

3) Lesson learned

Project Time Management

Schedule Control

1 Inputs

Project Schedule

2) Performance Report

Change request

Schedule management

Plan

2 Tools & techniques

Additional planning

Performance Measurement

Project management

Software

Change Control System

3 Outputs

Schedule updates

Corrective action

Lessons learned

Schedule Development

1 Inputs

Project network diagram

Activity duration estimates

Calendars

Resource Requirement

Resource pool requirement

Assumptions, Leads & lags

2 Tools & techniques

Mathematical analysis

Duration Compression

Simulation

Resource Leveling

Project management software

3 Outputs

Project schedule

Supporting details

Schedule management plan.

Resource Requirement Updates

Activity Definition

1 Inputs

Work breakdown structure

Scope statement

Constraints

Assumption

Historical information

2Tools & techniques

Template

Decomposition

3 Outputs

Work breakdown Structure

Activity List

Supporting Details

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Project Time Management

Activity Sequencing

1 Inputs

- Activity list
- Product description
- Constraints
- External dependence
- Assumptions

2 Tools & techniques

- Precedence Diagramming method
- Arrow Diagramming method
- Conditional Diagramming method
- Network Templates

3 Outputs

- Project Network Diagram
- Activity List updates

Activity Duration Estimation

1 Inputs

- Activity List
- Constraints
  - Assumptions
  - Resource Requirement
  - Resource capabilities
  - Historical Information

2 Tools & techniques

- Expert Judgment
- Analogous estimating
- Simulation

3 Outputs

- Activity duration estimates
- Basis of estimates
- Activity list updates

Project **Cost** Management

Cost Control

1 Inputs

- Cost baseline
- Performance reports
- Cost Management Plan
- Change requests

2 Tools & techniques

- Cost change control system
- Performance measurement
- Computerized tools
- Additional planning

3 Outputs

- Budget updates
- Revised Cost estimates
- Corrective Action
- Lesson learned

Cost Budgeting

1 Inputs

- Project schedule
- Work breakdown Structure
- Cost estimates

2 Tools & techniques

- Cost estimating tools and techniques

3 Outputs

- Cost Baseline

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Project **Cost** Management

Resource planning

1 Inputs

- Work breakdown structure
- Historical information
- Scope statement
- Organizational policies
- Resource pool description

2 Tools & techniques

- Expert judgment
- Alternatives identification

3 Outputs

- Resource Requirements

Cost Estimating

1 Inputs

- Resource rates
- Work breakdown structures
- Historical information
- Chart of accounts
- Activity Duration Estimates

2 Tools & techniques

- Analogous estimating
- Parametric modeling
- Computerized tools

3 Outputs

- Cost estimating
- Supporting details
- Cost management plans

Project **Quality** Management

Quality Planning

1 Inputs

- Quality policy
- Scope statement
  - Product description
- Standards & regulations
- Other process outputs

2 Tools & techniques

- Benchmarking
- Flowcharting
- Design of experiments
- Cost Analysis

3 Outputs

- Quality management Plan
- Operational definitions
- Checklists
- Input to other process

Quality Assurance

1 Inputs

- Quality management plan
- Results of quality control measurements
- Operational definitions

2 Tools & techniques

- Quality planning Tools & techniques
- Quality Audits

3 Outputs

- Quality improvement

Quality Control

1 Inputs

- Work results
- Quality management plan
- Operational definitions
- Tools & techniques

2 Tools & techniques

- Inspection
- Control charts
- Flowcharting
- Trend Analysis

3 Outputs

- **Q**uality improvement
- **A**cceptance decisions
- **R**ework
- Completed Checklist
- Process Adjustment

Project Human Resource Management

Organization Planning

1 Inputs
- Project interfaces
- Staffing requirements
- Constraints

2 Tools & techniques
- Templates
- Organizational theory
- Stakeholder analysis

3 Outputs
- Staffing management plan
- Organization chart
- Supporting detail
- Role and responsibility

Staff Acquisition

1 Inputs
- Staffing management plan
- Staffing pool description
- Recruitment practices

2 Tools & techniques
- Negotiations
- Pre-assignment
- Procurement

3 Outputs
- Project staff assigned
- Project Team directory

Team Development

1 Inputs
- Project staff
- Project plan
- Performance reports
- External feedback
- Staffing Management Plan

2 Tools & techniques
- Team building activities
- Collocation ,Training
- Reward & recognition system
- General Management Skills

3 Outputs
- Performance improvement
- Input to performance approval

Project **Communication** Management

Communication Planning

1 Inputs

Communication Requirement

Assumption

Constraint

Communication Technology

2 Tools & techniques

Stakeholder Analysis

3 Outputs

Communication management plan

Information Distribution

1 Inputs

Work results

Project plan

Communication management plan

2 Tools & techniques

Communication skills

Information retrieval system

Information distribution System

3 Outputs

Projects Records

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Project **Communication** Management

Performance reporting

1 Inputs

- Assumption
- Constraint
- Project Plan
- Communication Technology

2 Tools & techniques

- Stakeholders Analysis

3 Outputs

- Communication management plan

Administrative closure

1 Inputs

- Performance measurement Documentation.
- Documentation of product of the project
- Other project Records

2 Tools & techniques

- Performance Reporting tools & Techniques

3 Outputs

- Projects Archives
- Formal acceptance
- Lessons learned

Project **Risk** Management

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Identification

1 Inputs

- Product description
- Other planning output
- Historical information

2 Tools & techniques

- Checklist
- Flowcharting
- Interviewing

3 Outputs

- Sources of risk
- Potential risk events
- Risk symptoms

Quantification

1 Inputs

- Stake holder Risk Tolerance
- Potential Risk events
- Sources of Risk
- Cost estimates
- Activity Duration estimates

2 Tools & techniques

- Statistical Sums
- Simulation
- Expert Judgment
- Expected monitory value
- Decision tree

3 Outputs

- Opportunities to pursue & ignore
- Threat to respond to & accept

Project **Risk** Management

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Risk Response development

1 Inputs

Opportunities to pursue
Threats to respond to
Opportunities to ignore
Threats to accept

2 Tools & techniques

Contingency planning
Procurement
Insurance
Alternate strategies

3 Outputs

Contingency plans
Risk Management Plan
Reserves
Contractual agreement

Risk Response control

1 Inputs

Risk Management Plan
Actual Risk events
Risk identification

2 Tools & techniques

Workarounds
Additional risk Response development

3 Outputs

Corrective Action
Updates to risk management

Project **Procurement** Management

Procurement Planning

1 Inputs
- Scope statement
- Product description
- Assumption
- Constraints
- Market Conditions
- Other planning Outputs

2 Tools & techniques
- Make or buy analysis
- Expert judgment
- Contract type selection

3 **Outputs**
- Procurement management Plan.
- Statement of work

Solicitation Planning

1 Inputs
- Procurement
- Statement of work
- Other planning output

2 Tools & techniques
- Standard Forms
- Expert judgment

3 Outputs
- Statement of work updates
- Procurement Documents
- Evaluation criteria

Solicitation

1 Inputs
- Procurement Documents
- Qualified seller list

2Tools & techniques
- Bidders Conference
- Advertising

3 Outputs
- Proposals

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Project **Procurement** Management

Source selection

1 Inputs
- Evaluation criteria
- Proposal
- Organizational policies

2 Tools & techniques
- Contract negotiation
- Weighing system
- Independent estimates
- Screening System

3 **Outputs**

Contract

Contract administration

1 Inputs
- Contract
- Work results
- Change requests
- Seller's Invoice

2 Tools & techniques
- Contract change control system
- performance Reporting
- payment System

3 Outputs
- Correspondence
- Contact Changes
- Payment request

Contract Close out

1 Inputs
- Contact documentation

2Tools & techniques
- Procurement audit

3 Outputs
- Contract file
- Formal acceptance & closure

Process view of Project management

The PMI Framework also presents each of the processes mentioned in the knowledge areas in the form of process view.

PMI considers that managing a project needs a formal process approach.There are five basic processes in project management.

Project initiation

Planning processes

Execution processes

Monitoring processes

Closure processes

Process view of Project management

Process Category	Core Process	Support Process
Initiating Process	Initiation	Initiation
Planning Process	Scope a) Planning b) Definition Activity a) Definition b)Sequencing c) Duration estimation Schedule Development ,Resource Planning Cost estimation,Cost budgeting Project Plan Development	Quality planning, organizational planning , Communication Planning Risk Identification & Quantification, Risk Response development, Procurement Planning, Solicitation Planning,
Execution Process	Execution	Scope Verification, **Quality** Assurance, Team Development, Information Distribution, Solicitation, Source selection Contract administration
Controlling Process	Overall change Control Performance Reporting	Scope Change Control, Schedule Control Quality Control,Cost Control
Close out Process	Contract Close out, Administrative Closure	

The PMI Framework

End of Chapter 2