# CHAPTER 4

## The Project Management Discipline

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# project management institutes

The Project Management Institute (PMI) is the largest organization in the world devoted to project management. Other major international organizations include the Association for Project Management (APM), British Standard Institute (BSI), Engineering Advancement Association (ENAA) of Japan, Australian Institute of Project Management, and the International Project Management Association (IPMA).

ISO 10006 *Guides to Quality in Project Management.*

# BoK

- The APM has developed a Body of Knowledge (BoK) of Project Management Competencies, which identifies 40 key competencies grouped as follows:

- *Project Management: Covering the key elements that differentiate projects from* general management

- *Organizations and People: Detailing the main qualitative skills of a project* manager

- *Techniques and Procedures: Details the quantitative methods*

- *General Management: Covers industry specific concepts*

# Project Management Body of Knowledge

— PMI established its first body of knowledge in 1976, which around 1987 became *A Guide to the Project Management Body of Knowledge (PMBOK; PMI, 2000). It was revised* several times with major releases in 1996, 2000, and 2005; there are approximately 1.5 million copies of all PMBOK versions in circulation.

— The PMBOK embodies generally accepted best of practice procedures, methods, and general tools, which are derived by a structured consensus of its vast membership.

# PMBOK

– The PMBOK's content is organized into processes, and each of the 37 key processes are defined as procedures that receive various input, produce various output, and use various methods (such as management techniques, mathematical techniques, statistical techniques, etc.), perhaps with the assistance of some general tools (typically, some type of software).
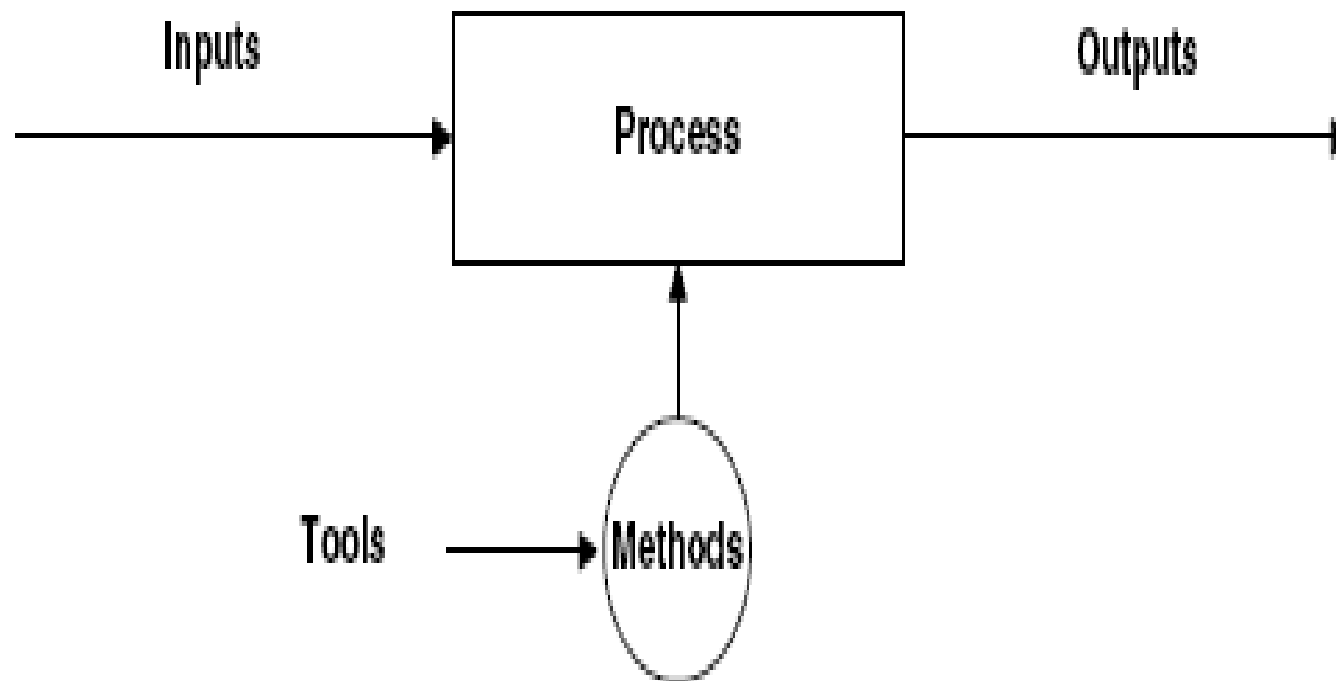
# PMBOK

– These processes are grouped into five process groups that relate to how project work is managed:

1. Initiation
2. Planning
3. Execution
4. Control
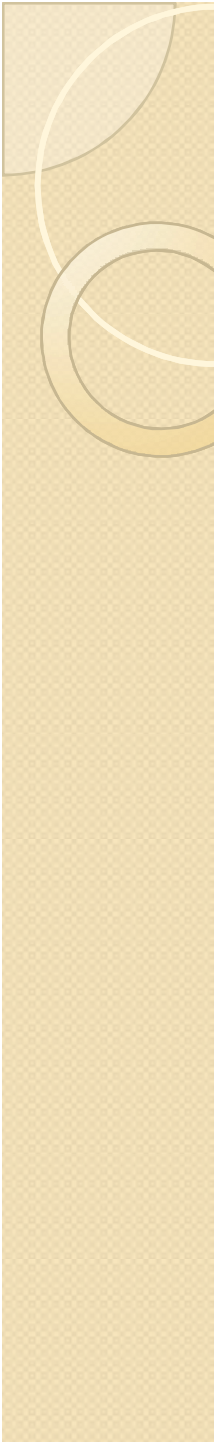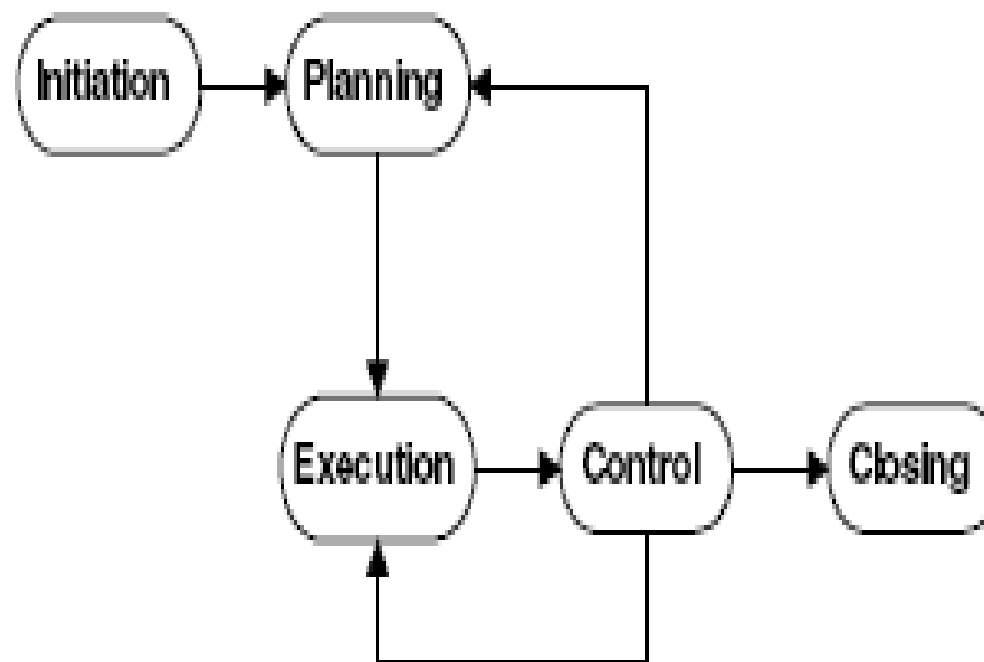5. Closing

## Process representation

# PMBOK

– processes are further subdivided into nine knowledge areas:

1. Integration Management [3 processes]
2. Scope Management [5 processes]
3. Time Management [5 processes]
4. Cost Management [4 processes]
5. Quality Management [3 processes]
6. Human Resource Management [3 processes]
7. Communication Management [4 professes]
8. Risk Management [4 processes]
9. Procurement Management [6 processes]

– Output from one process-group process will typically be the input to another process, either in the same process group or the next one in the sequence.

– Large projects typically are broken down into phases, and the organization of those project phases is discipline specific and typically follows some type of methodology.

# Process group interaction
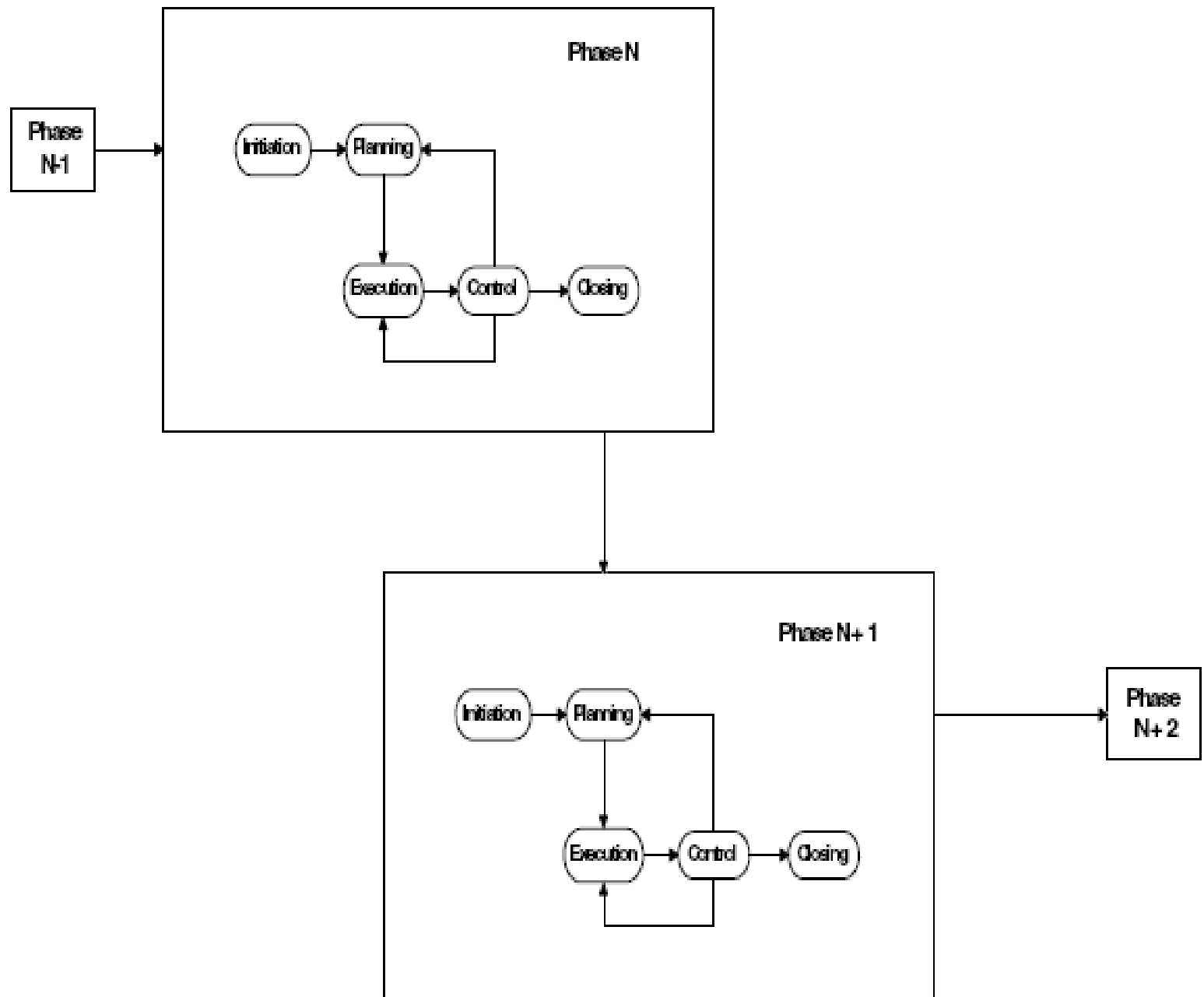
## PMI Process Groups and Knowledge Areas

| | Initiation | Planning | Executing | Controlling | Closing |
|---|---|---|---|---|---|
| Integration | | Project Plan Development | Project Plan Execution | Overall Change Control | |
| Scope | Initiation | Scope Planning | Scope Verification | Scope Change Control | Scope Verification |
| | | Scope Definition | | | |
| Time | | Activity Definition | | Schedule Control | |
| | | Activity Sequencing | | | |
| | | Activity Duration Estimation | | | |
| | | Schedule Development | | | |
| Cost | | Resource Planning | | Cost Control | |
| | | Cost Estimating | | | |
| | | Cost Budgeting | | | |
| Quality | | Quality Planning | Quality Assurance | Quality Control | |
| Human Resources | | Organizational Planning | Staff Acquisition | Team Development | |
| Communications | | Communications Planning | Information Distribution | Performance Reporting | Administrative Closure |
| Risk | Risk Identification | Risk Identification | | Risk Response Control | |
| | | Risk Quantification | | | |
| | | Risk Response Development | | | |
| Procurement | | Procurement Planning | Solicitation | Contract Administration | Contract Closeout |
| | | Solicitation Planning | Source Selection | | |
| | | | Contract Administration | | |

# Project phasing
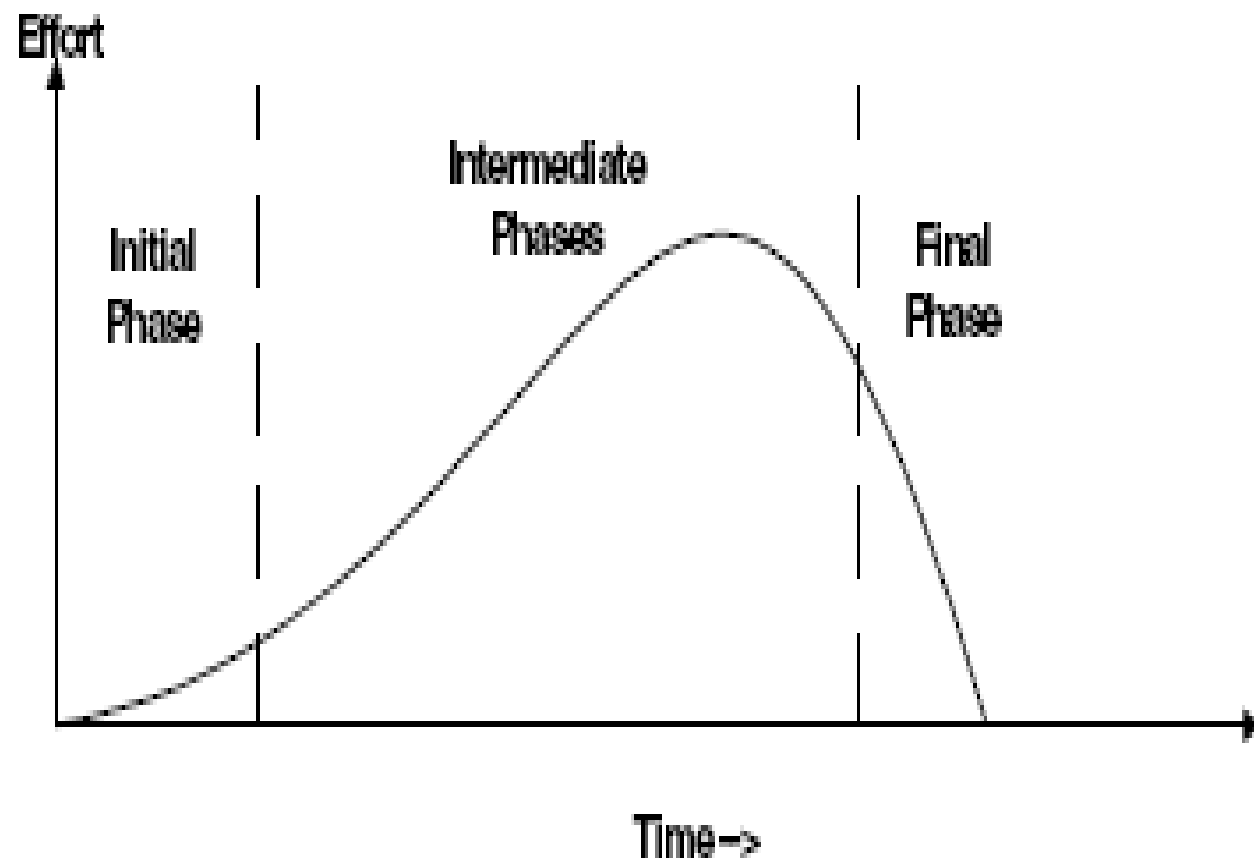
# A typical phasing for very large IT projects

- Feasibility, Proposal, Business Plan, Requirements Specification
- Design
  - Overall design
  - External (user interaction) specifications
  - Detail design
  - "As designed" internal documentation
  - Test plans
  - Deployment and integration specifications
- Implementation
  - Coding
  - Unit testing

- Module and Feature Testing
- User documentation
- "As built" internal documentation
- Installation
  - Conversion
  - Training
  - Network and site preparation
  - Hardware install and integration
  - Software install and integration
  - Integration and acceptance testing
  - Parallel operation
- Operation and Maintenance (O & M)

Phase N-1

**Phase N**

Initiation → Planning

Execution → Control → Closing

**Phase N+1**

Initiation → Planning

Execution → Control → Closing

Phase N+2

# PMI's summarization of key activities by process group follow

- **Key Initiation Activities**
  - Project feasibility (high-level ROI approximation)
  - High-level planning
  - Project charter document (memo, letter)
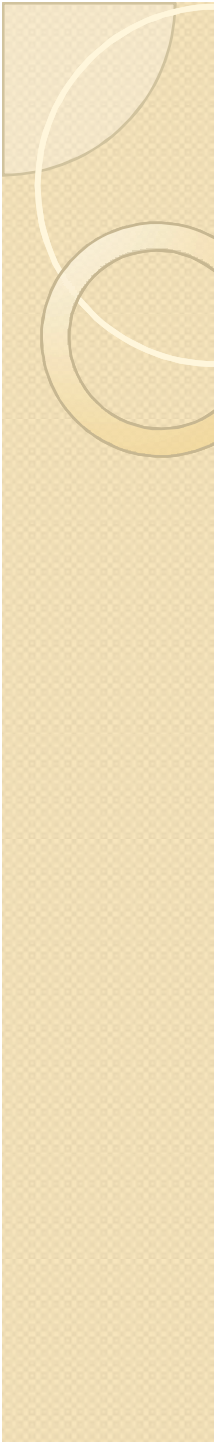- **Key Planning Activities (order important)**
  - Develop scope statement
  - Assemble project team
  - Develop work breakdown structure (WBS)
  - Finalize project team
  - Do network type diagram (showing activity dependencies)
  - Estimate cost and time, find the "critical path"
  - Determine overall schedule and budget
  - Procurement plan

- Quality plan
- Identify risks, quantify them, develop risk responses
- Other plans: change control plan, communications plan, management plan
- Overall project plan
- Project plan approval
- "Kickoff meeting"
- **Key Execution Activities**
  - Execute the project plan
  - Complete work packets (activities)
  - Information distribution
  - Quality assurance
  - Team development
  - Scope verification
  - Progress meetings

# PMI's summarization of key activities by process group follow(cont)

– **Key Control Activities**
  ◦ Overall change control
  ◦ Performance reporting
  ◦ Scope control
  ◦ Quality control
  ◦ Risk response control
  ◦ Schedule control
  ◦ Cost control
  ◦ Manage by exception to the project plan

– **Key Closing Activities**
  ◦ Procurement audits and contract(s) close out
  ◦ Product verification
  ◦ Formal acceptance
  ◦ Lessons learned documentation
  ◦ Update all project records
  ◦ Archive records
  ◦ Release team

# PMP

The highest certification level is that of a PMP (project management professional).The requirements for an individual to be awarded that certification level include:

— 4,500 hours of documented project management experience over 3-6 years

— BS/BA Degree and at least 35 contact hours in PM training

— Passing a very comprehensive 4 hour exam on the PMBOK

— Adherence to the PMI professional code of ethics

There are about 100,000 certified PMPs in the world.

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| PMBOK | | SDLC | |
| --- | --- | --- | --- |
| Process Group | Outputs | Stage | Outputs |
| Initiation | Business Plan | | |
| | Project Charter | | |
| Plan | Overall Plan Management Plan | | |
| | Scope Statement | Definition | Project Plan: |
| | | | Communications Plan |
| | | | Change Management Plan |
| | | Requirements | Requirements Document |
| | WBS Document | | |
| | Network Diagram | | |
| | Schedule | | |
| | Resource Plan | | |
| | Cost Plan | | |
| | Procurement Plan | | |
| | Quality Plan | | |
| | Risk Plan | | |
| Execute/Control | Performance Reports | Analysis | Overall Design Documents: |
| | Stage Gate Reviews | | Use Cases |
| | | | Preliminary Users Manual |
| | | | Test Plan |
| | | Design | Detail Design Documents: |
| | | | Menu/Navigation Design |
| | | | Screen Designs and Storyboards |
| | | | Report Designs |
| | | | Database Design |
| | | | Algorithms Design |
| | | | Prototypes |
| | | Construction | Development Objects: |
| | | | Commented Code |
| | | | Test Scripts |
| | | | Help Screens |
| | | Testing | Test Results Documents |
| | | | User Manual |
| | | | Training Material |
| | | Installation | Install Documents |
| Closing | Project Close Out | | |
| | Contract Close Out | | |
| | Lessons Learned | | |