Introduction

The Project Management Body of Knowledge (PMBOK®) is an internationally recognized standard (IEEE, ANSI) that deals with the application of knowledge, skills, tools, and techniques to meet project requirements. The PMBOK Guide defines a Project Life Cycle, 5 Process Groups and 9 Knowledge areas of the project management profession.

A project team operates in 9 knowledge areas through a number of basic processes is summarized below:

1. **Integration**: Develop the Project Charter, Scope Statement and Plan. Direct, Manage, Monitor and Control Project Change.
5. **Quality**: Quality Planning, Quality Assurance and Quality Control.
6. **Human Resources**: HR Planning, Hiring, Developing and Managing Project Team.
7. **Communications**: Communications Planning, Information Distribution, Performance Reporting, Managing Stakeholders.
8. **Risks**: Risk Planning and Identification, Risk Analysis (Qualitative and Quantitative), Risk Response (Action) Planning and Risk Monitoring and Control.

For each process, activity, or practice, a description of input, tools and technique and output (deliverables) is available.

Origin of PMBOK. History

The Project Management Institute (PMI) was founded in 1969, initially to identify common management practices in projects across industries.
The first edition of the PMBOK was published in 1987. It was the result of workshops initiated in the early 80s by the PMI. In parallel a Code of Ethics was developed. And guidelines for accreditation of training centers and certification of individuals.

Later, a second version of the PMBOK was published (1996 and 2000), based on comments received from the members. PMBOK was recognized as a standard by the American National Standards Institute (ANSI) in 1998, and later by the Institute of Electrical and Electronics Engineers (IEEE).

The third version of the PMBOK Guide (tm) was published in 2004, with major improvements in the structure of the document, additions to processes, terms and domains of program and portfolio.

Usage of PMBOK. Applications

All kinds of project, programs and portfolio management. Application areas include:

- Management programs (General)
- Departmental projects (Functional)
- Engineering projects (Technical)
- Industry specific processes
- Product development (Marketing)
- Government programs (Public)
- Development programs (International organizations)

PMBOK Process

A Project is accomplished through the integration of the project management processes. PMBOK uses a variation of the Deming Cycle for continuous improvement with a 5-step lifecycle:

1. Initiating. Main elements
   - Authorize the project
   - Commit the organization to a project or phase
   - Set the overall direction
   - Define top-level project objectives
   - Secure necessary approvals and resources
   - Validate alignment with overall business objectives
   - Assign project manager
- Integration management

- Planning. Main elements:
  - Define project scope
  - Refine project objectives
  - Define all required deliverables
  - Create framework for project schedule
  - Provide forum for information sharing for team members and stakeholders
  - Define all required activities
  - Sequence all activities
  - Identify required skills and resources
  - Estimate work effort
  - Risk analysis and avoidance
  - Define and estimate all required costs
  - Obtain project funding approval
  - Communication plan

- Executing. Main elements:
  - Coordinate the resources, team development
  - Quality assurance
  - Select and approach subcontractors
  - Distribute information
  - Work the plan

- Monitoring and Controlling. Main elements:
  - Manage team, stakeholders, subcontractors
  - Measuring progress and monitoring performance (overall, scope, schedule, costs, quality)
  - Take corrective actions if and where needed. Issue resolution and escalation
  - Change request management
  - Risk Management (technical, quality, performance, project management, organizational, external)
  - Performance reports. Communications

- Closing. Main elements:
  - Finalize activities
  - Administrative close out (gather, distribute, archive information to formalize project completion, acceptance/signoff, evaluation, member appraisals, lessons learned)
  - Contract close out (completion of the project contract including resolution of open items and final formal acceptance)
The Project Manager is responsible for the project objectives to deliver the final product that has been defined, within the constraints of project scope, time, cost and required quality.

**Strengths and Benefits of PMBOK**

- PMBOK guide is a framework and de facto standard.
- It is process-oriented.
- It states the knowledge needed to manage the life cycle of any Project, Program and Portfolio through their processes.
  - It defines for each process the necessary input, tools, techniques and output (deliverables).
  - It defines a body of knowledge on which any industry can build it specific best practices for its application area.

**Limitations of PMBOK. Disadvantages**

- Complex for small projects.
- Has to be adapted to the application area industry, project size and scope, time and budget and quality constraints.

**Assumptions of PMBOK. Conditions**

- Project management needs a standard that is applicable to any kind of project scope, industry and culture.