**Project Management – PMBOK Content, 6th Edition**

Michael D. Harper, Ph.D.

**PMBOK: Project Management Body of Knowledge**

**Reference:** A Guide to the Project Management Body of Knowledge, (PMBOK), 6th Edition, 2017, Project Management Institute, Inc., ISBN: 9781628251845

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| **PMBOK – Cycles, Phases, Process Groups, Knowledge Areas, ITTO**   * Cycles * Product Life Cycle   + Introduction, Growth, Maturity, Decline * Project Life Cycle   + Initiating, Planning, Executing, Monitoring, Controlling, Closing * Phases.   + Project Life Cycle Phases.     - Concept, Development, Implementation, Close-out   + Project Time Phases.     - Sequential, Overlapping, Iterative   + Product Life Cycle Phases.     - Design, Prototype, Final Assembly * Process groups.   + Initiating Process Group. Processes needed to start the project.   + Planning Process Group. Processes needed to determine what is to be done in the project.   + Executing Process Group. Processes needed to do the project.   + Monitoring and Controlling Process Group. Processes needed to manage the project.   + Closing Process Group. Processes needed to finalize the project when done. * Knowledge areas.   + Project Integration Management   + Project Scope Management   + Project Schedule Management   + Project Cost Management   + Project Quality Management   + Project Resource Management   + Project Communications Management   + Project Risk Management   + Project Procurement Management   + Project Stakeholder Management * ITTO.   + Inputs, Tools, Techniques, Outputs   . |
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PMBOK 6th Edition

**Project Management Knowledge Areas (10)**

**Project Management Processes (49)**

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| Project Integration Management   1. Develop Project Charter 2. Develop Project Management Plan 3. Direct and Manage Project Work 4. Manage Project Knowledge 5. Monitor and Control Project Work 6. Perform Integrated Change Control 7. Close Project or Phase   Project Scope Management   1. Plan Scope Management 2. Collect Requirements 3. Define Scope 4. Create WBS 5. Validate Scope 6. Control Scope   Project Schedule Management   1. Plan Schedule Management 2. Define Activities 3. Sequence Activities 4. Estimate Activity Durations 5. Develop Schedule 6. Control Schedule   Project Cost Management   1. Plan Cost Management 2. Estimate Costs 3. Determine Budget 4. Control Costs   Project Quality Management   1. Plan Quality Management 2. Manage Quality 3. Control Quality | Project Resource Management   1. Plan Resource Management 2. Estimate Activity Resources 3. Acquire Resources 4. Develop Team 5. Manage Team 6. Control Resources   Project Communications Management   1. Plan Communications Management 2. Manage Communications 3. Monitor Communications   Project Risk Management   1. Plan Risk Management 2. Identify Risks 3. Perform Qualitative Risk Analysis 4. Perform Quantitative Risk Analysis 5. Plan Risk Responses 6. Implement Risk Responses 7. Monitor Risks   Project Procurement Management   1. Plan Procurement Management 2. Conduct Procurements 3. Control Procurements   Project Stakeholder Management   1. Identify Stakeholders 2. Plan Stakeholder Engagement 3. Manage Stakeholder Engagement 4. Monitor Stakeholder Engagement |

**Project Management Process Groups (5)**

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| Chapter 3 (PMBOK 5th Edition)   1. Initiating 2. Planning 3. Executing 4. Monitoring and Controlling 5. Closing |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Monitoring and Controlling | | | | | | |  |  |
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|  |  |  |  | Planning | | |  |  |  |  |
|  | Initiating | | 🡪 | 🡪 |  | 🡪 | 🡪 | Closing | |  |
|  |  |  |  | Executing | | |  |  |  |
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**Interrelationship between:**

* **Project Management Knowledge Areas (10)**
* **Project Management Processes (49)**
* **Project Management Process Groups (5)**

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|  |  | Process Groups | | | | |
|  | **Processes** | Initiating | Planning | Executing | Monitoring &  Controlling | Closing |
| Knowledge Areas | Integration | 1 | 2 | 3,4 | 5,6 | 7 |
| Scope |  | 1,2,3,4 |  | 5,6 |  |
| Schedule |  | 1,2,3,4,5 |  | 6 |  |
| Cost |  | 1,2,3 |  | 4 |  |
| Quality |  | 1 | 2 | 3 |  |
| Resource |  | 1,2 | 3,4,5 | 6 |  |
| Communications |  | 1 | 2 | 3 |  |
| Risk |  | 1,2,3,4,5 | 6 | 7 |  |
| Procurement |  | 1 | 2 | 3 |  |
| Stakeholder | 1 | 2 | 3 | 4 |  |

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|  |  | Examples of Output | | |
| Knowledge Areas | Integration | Charter |  | Project Plan |
| Scope | Scope Statement |  | WBS |
| Schedule | Schedule |  | Gantt, CPM, PERT |
| Cost | Budget |  | EVM/EVA |
| Quality | QP/QA/QC |  | 7 Basic Tools |
| Resource | RAM |  | SMP |
| Communications | Meetings |  | Communications Plan |
| Risk | Risk Register |  | Risk Responses |
| Procurement | RFP |  | Contracts |
| Stakeholder | Register |  | Stakeholder Plan |

**PMBoK Knowledge Areas Breakdown.**

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|  | |  |  |  | | **Knowledge**  **Area** | |  | |  |
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| **Process** | | |  | **Process** | | | **. . .** | **Process** | | |
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|  | **ITTO** | |  |  | **ITTO** | |  |  | **ITTO** | |
|  | **1. Inputs** | |  |  | **1. Inputs** | |  |  | **1. Inputs** | |
|  | **2. Tools and**  **Techniques** | |  |  | **2. Tools and**  **Techniques** | |  |  | **2. Tools and**  **Techniques** | |
|  | **3. Outputs** | |  |  | **3. Outputs** | |  |  | **3. Outputs** | |

For example, consider the structure of the Project Cost Management knowledge area.

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|  |  |  |  | **Project Cost Management** | | | | |  |  |  |  |
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| **Plan Cost**  **Management** | |  | **Estimate**  **Costs** | |  | **Determine**  **Budget** | | |  | **Control**  **Costs** | |  |
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|  | **ITTO** |  |  | **ITTO** |  |  | **ITTO** | |  |  | **ITTO** |  |
|  | **1. Inputs** |  |  | **1. Inputs** |  |  | **1. Inputs** | |  |  | **1. Inputs** |  |
|  | **2. Tools and**  **Techniques** |  |  | **2. Tools and**  **Techniques** |  |  | **2. Tools and**  **Techniques** | |  |  | **2. Tools and**  **Techniques** |  |
|  | **3. Outputs** |  |  | **3. Outputs** |  |  | **3. Outputs** | |  |  | **3. Outputs** |  |

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| **Plan Cost Management** |
| Inputs  1. Project charter  2. Project Management Plan   * Schedule management plan * Risk management plan   **3. Enterprise environmental factors**  **4. Organizational process assets**  Tools & Techniques  1. Expert judgment  2. Data Analysis  3. Meetings  Outputs  1. Cost management plan |

**Project Schedule Management, PMBOK 6th Edition**

Michael D. Harper, Ph.D.

*“Project schedule management involves defining and controlling the timely completion of the project.”*

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|  | **Project Time Management** | **Process Groups** | | | | |
|  | **Major Processes** | Initiating | Planning | Executing | Monitoring &  Controlling | Closing |
|  | Plan Schedule Management |  | 1 |  |  |  |
| **🡪** | Define Activities |  | 2 |  |  |  |
| **🡪** | Sequence Activities |  | 3 |  |  |  |
| **🡪** | Estimate Activity Durations |  | 4 |  |  |  |
| **🡪** | Develop Schedule |  | 5 |  |  |  |
| **🡪** | Control Schedule |  |  |  | 6 |  |

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| **Define Activities** | Activity List |

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| **Sequence Activities** | Network 🡪 AOA, AON |

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| **Estimate Activity Durations** | Time 🡪 Gantt Chart |

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| **Develop Schedule** | CPM, PERT |

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| **Control Schedule** | Monitoring, Crashing, Fast Tracking, Resource Allocation |

**Project Cost Management, PMBOK 6th Edition**

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*“Project cost management involves defining and controlling the cost to ensure the project is completed within the approved budget.”*

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|  | **Project Cost Management** | **Process Groups** | | | | |
|  | **Major Processes** | Initiating | Planning | Executing | Monitoring &  Controlling | Closing |
|  | Plan Cost Management |  | 1 |  |  |  |
| 🡪 | Estimate Costs |  | 2 |  |  |  |
| 🡪 | Determine Budget |  | 3 |  |  |  |
| 🡪 | Control Costs |  |  |  | 4 |  |

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| **Estimate Costs** | Cost Estimates. 🡪 Primary Cost, Secondary Costs |

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| **Determine Budget** | WBS 🡪 Cost Estimates 🡪 Cost Baselines |

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| **Control Costs** | Cost Baseline 🡪 Performance reports 🡪 Evaluation and action  [ Earned Value Analysis ] |

**Project Quality Management, PMBOK 6th Edition**

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“Project quality management ensures the project meets and exceeds stakeholder’s needs and expectations.”

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|  | **Project Quality Management** | **Process Groups** | | | | |
|  | **Major Processes** | Initiating | Planning | Executing | Monitoring &  Controlling | Closing |
| 🡪 | Plan Quality Management |  | 1 |  |  |  |
| 🡪 | Manage Quality |  |  | 2 |  |  |
| 🡪 | Control Quality |  |  |  | 3 |  |

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| Background. | Project Quality Program:  Quality Planning, Quality Assurance (QA), Quality Control (QC) |

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| Plan Quality Management. | “Identify the process to generate a Quality Management Plan.” |

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| Manage Quality. | “Implement the quality management plan.” |

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| Control Quality. | “Monitor project results and improve project performance.” |

**Project Risk Management, PMBOK 6th Edition**

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*“Project risk management is concerned with identifying, analyzing, and responding to project risk.”*

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|  | **Project Risk Management** | **Process Groups** | | | | |
|  | **Major Processes** | Initiating | Planning | Executing | Monitoring &  Controlling | Closing |
| 🡪 | Plan Risk Management |  | 1 |  |  |  |
| **🡪** | Identify Risks |  | 2 |  |  |  |
| **🡪** | Perform Qualitative Risk Analysis |  | 3 |  |  |  |
| **🡪** | Perform Quantitative Risk Analysis |  | 4 |  |  |  |
| 🡪 | Plan Risk Responses |  | 5 |  |  |  |
|  | Implement Risk Responses |  |  | 6 |  |  |
| 🡪 | Monitor Risks |  |  |  | 7 |  |

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| **Risk & Utility** | Risk= [Probability & Outcome] or [Likelihood & Consequence] |
| Utility= Attitude toward risk. (Risk-neutral, Risk-averse, Risk-prone) |

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| **Plan Risk Management** | Risk Management Plan (RBS, Approach, Components) |
| RBS: Risk Breakdown Structure (Identify Risk Categories) |

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| **Identify Risks** | Create a Risk Register of risk events. |

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| **Risk Analysis** | Perform Qualitative Risk Analysis. 🡪 Risk Ranking.  (Matrix, Risk Factor, Top Ten Tracking, Watch List.) |
| Perform Quantitative Risk Analysis. 🡪 Risk Evaluation.  (Stochastic Utility Analysis, Decision Analysis, PERT/CPM Analysis, Simulation.) |

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| **Plan Risk Responses** | Risks with Positive and Negative Consequences. |
| Additional Risks and Plans. |

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| **Monitor Risks** | Conduct risk audits and reviews |
| Analyze triggers, trends, patterns. |

**Project Procurement Management, PMBOK 6th Edition**

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*“Project procurement management is concerned with the identification and acquisition of goods and services from outside sources.”*

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|  | **Project Procurement Management** | **Process Groups** | | | | |
|  | **Major Processes** | Initiating | Planning | Executing | Monitoring &  Controlling | Closing |
| **🡪** | Plan Procurement Management |  | 1 |  |  |  |
| **🡪** | Conduct Procurements |  |  | 2 |  |  |
|  | Control Procurements |  |  |  | 3 |  |

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| **Procurement** | [Outsourcing, Subcontracting, Purchasing, Buying, 3rd Party Sourcing] |

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| **Plan Procurement Management** | Procurement Management Plan   * Make/Buy, Contracts * Statement of Work (SOW) * Request for Proposal (RFP) |

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| **Conduct Procurements** | * Distribute and collect seller documentation * Negotiate terms, select sellers, and prepare contracts. |