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

Michael D. Harper, Ph.D.

 “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.” |

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| **Project Quality Program** |
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| ***Quality******Planning*** | **🡪** | ***Quality******Assurance (QA)*** | **🡪** | ***Quality******Control (QC)*** |
| “Define quality, standards, and the process to achieve them.” |  | “Implement the quality management plan.” |  | “Monitor project results and improve project performance.” |
|  |  | **🡪** | **🡨** | **🡪** |
| Create Plan |  | Follow ProcessesMeet Standards |  | Identify ChangesImprove Quality |
| Planning Group |  | Executing Group |  | Monitoring and Controlling Group |

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{ **Project Quality }**

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

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| ***Consider stakeholders from four different perspectives*** |
| **Perspective** | **Examples** |
| Recipients of the product or service. | Sponsor, Customers |
| Participants in the process. | Team members |
| Citizens of the project culture. | Management |
| Observers of the project environment. | Regulatory agencies |

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|  |  | **Project Environment** |  |  |  |  |
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|  |  | **Project Culture** |  |  |  |  |
|  |  | **Process** | **🡪** | **🡪** | **Product** |  |
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Contrast “***project* quality management**” with “**quality management**”

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| **Area** | **Project Approach** | **Business Approach** |
| Time | Fixed term | Long term |
| Cost | Budget tied to deliverables | Budget tied to profitability |
| Scope | Focus on stakeholders | Focus on organizational objectives |

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| ***Criteria for Defining Project Quality*** |
| **Drivers** | **Primary** | **Secondary** |
| Product driven | Conformance to Specifications | Contributes to Organizational Reputation or Image |
| Process driven | Meeting Deliverables | Enhancing Organizational Assets |
| Quality driven | Satisfying Stakeholder Needs and Expectations | Improving Moral of Team Members |

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| ***Keys to Project Quality Management*****\*Include Team Members****\*Measurement & Communication****\*Focus on timely deliverables that satisfy stakeholders** |

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

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|  | Project Deliverables, Standards, Stakeholder Requirements |
|  |  | 🡪 Design  |
|  |  |  | 🡪 Quality Management Plan |

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|  |  | Project |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | Deliverables |  |  |  |  |  |  |  | Stakeholder |  |  |  |  |
|  |  |  |  |  |  | Standards |  |  |  | Requirements |  |  |  |  |
|  |  | Scope Statement |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | Internal |  |  |  | Needs |  |  |  | Quality |
|  |  | WBS |  |  |  |  |  |  |  |  |  |  | 🡪 | Management |
|  |  |  |  |  |  | External |  |  |  | Expectations |  |  |  | Plan |
|  |  | Project Baselines |  |  |  |  |  |  |  |  |  |  |  |  |
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| Input (from PMBoK)1. Enterprise environmental factors
2. Organizational process assets
3. Project scope statement
4. Project management plan
 | Quality Management Plan1. Part of project management plan
2. Addresses QA & QC
3. Addresses continuous process improvement
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Contents of the Quality Management Plan

The quality management plan will decide what, when, how, who, and why to measure quality characteristics directed toward *project* quality.

* What to measure? (Quality checklist)
* When to measure? (Communications plan)
* How to measure? (Quality metrics)
* Who to measure? (Roles and responsibilities)
* Why measure? (Quality baseline and the risk management plan)
* Other – (Quality Audits & Reviews)

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| What to measure? The need to measure a quality characteristic can come from many sources. In deciding what to measure, ask these three questions:If we do, will it help? 🡪 what is the value addedIf we don’t, will it hurt? 🡪 what are the risksDo we have to? 🡪 if it is required, just do it |

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

 Plan 🡪 Audit 🡪 Quality Results

[Continual Business Process Improvement]

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|  | Plan | 🡪 | Audit | Ensure🡪 | \*Process Improvement\*Best Practices\*Plan Updates |  |
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**Control Quality**. “Monitor project results and improve project performance.”

 Measurement 🡪 Analysis 🡪 Quality Improvement

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|  | Measurement& Analysis | 🡪 | Change | Yes🡪 | \*Verify Quality Improvement\*Change Management\*Configuration Management\*Plan Updated |  |
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**QA/QC: Measurement –Topics – Tools**

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| \*W. Edwards Deming. [14 Points – PDCA Cycle]\*Walter Shewhart. [Process Control Charts (Shewhartian Charts)]\*Kaoru Ishikawa. [7 Basic Tools – Cause-and-Effect Diagram (Fishbone Chart, Ishikawa Diagram)]\*Joseph Juran. [Vital Many vs. Trivial Few (80/20 Rule or Pareto Analysis)]\*7 Management Tools. (Planning)\*Six-Sigma. (Conformance to Specifications)\*Balanced Scorecard. (Management Strategy)\*Total Quality Management. (Distributed Quality)\*Leadership.\*Workplace Factors.\*Cost of Quality. (Prevention, Appraisal, Internal Failure, External Failure)**Maturity Models**\*Software Quality Function Deployment (SQFD)\*Capability Maturity Model (CMM)\*Organizational Project Management Maturity Model (OPM3) |

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| **PDCA Cycle**.

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|  |  | **Plan** |  | **Do** |  |  |
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| **Improvement** |  |  |  |  |  |  |  | **Assurance** |
|  |  | **Act** |  | **Check** |  | **(Precision)** |
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|  |  |  | **Control****(Accuracy)** |  |  |  |
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| .**The 7 Basic Tools*** Check Sheet (Recording Measurements)
* Pareto Analysis (Rank ordered histogram of attribute data)
* Cause and Effect Diagrams (Identifying relationships)
* Stratification (Examining levels of factors)
* Histograms (Frequency content of variable data)
* Scatter Diagrams (Relationship between two variables)
* Control Charts (Monitoring one variable over time)

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| .**Six-Sigma (6-)*** SIPOC (Supplier🡪Input🡪Process🡪Output🡪Customer)
* CTQ (Critical-to-Quality)
* VoP (Voice of Process)
* VoC (Voice of Customer)
* DMAIC (Define – Measure – Analyze – Improve – Control)
* DMADV (Define – Measure – Analyze – Design – Verify)

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