**Quality Management Plan –** Integrated NPI Build Optimization Framework for Hardware Development

By

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**Name of Project:**

Integrated NPI Build Optimization Framework for Hardware Development

**Purpose**

The **Quality Management Plan** outlines the approach for ensuring that project deliverables meet the defined quality standards and stakeholder expectations. This plan defines quality objectives, assurance activities, control processes, and continuous improvement strategies.

**Quality Objectives**

* Ensure all deliverables meet predefined quality standards.
* Minimize defects and rework through proactive quality assurance and control.
* Align project outcomes with stakeholder expectations and project requirements.
* Implement continuous improvement throughout the project lifecycle.

**Roles and Responsibilities**

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| **Role** | **Responsibility** |
| **Project Sponsor** | Approves the quality management plan and verifies deliverable acceptance. |
| **Project Manager** | Implements and monitors quality management processes. |
| **Quality Assurance (QA) Lead** | Oversees quality assurance activities and standards implementation. |
| **Quality Control (QC) Team** | Conducts inspections, audits, and testing. |
| **Project Team Members** | Follow quality procedures and report quality issues. |
| **Stakeholders** | Provide feedback on deliverables and quality standards. |

**Quality Standards**

All project deliverables must comply with the following quality standards:

* **ISO 9001:** Quality management principles.
* **Company Quality Guidelines:** Internal standards for documentation and reporting.
* **Industry Best Practices:** Standards for supply chain and production processes.
* **Compliance Requirements:** Regulatory standards relevant to project outcomes.

**Quality Assurance (QA) Activities**

**Quality Assurance** focuses on preventing defects by improving the processes used to create deliverables.

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| **QA Activity** | **Frequency** | **Owner** |
| **Process Audits** | Bi-monthly | QA Lead |
| **Design Reviews** | At key milestones | Project Manager, QA Lead |
| **Vendor Quality Assessments** | Before onboarding | Supply Chain Expert, QA Lead |
| **Training on Quality Standards** | Project initiation | Project Manager, QA Lead |
| **Risk-Based Testing** | As risks are identified | Risk Manager, QA Lead |

**Quality Control (QC) Activities**

**Quality Control** focuses on identifying defects in deliverables and ensuring they meet quality requirements.

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| **QC Activity** | **Frequency** | **Owner** |
| **Inspection of Deliverables** | At completion of each phase | QC Team |
| **Testing and Validation** | Prior to deployment | QA Lead, QC Team |
| **Defect Tracking** | Ongoing | QC Team |
| **Document Review and Approval** | Before submission | Project Manager |
| **User Acceptance Testing (UAT)** | Before project closure | QA Lead, Stakeholders |

**Quality Metrics**

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| **Metric** | **Target** | **Measurement Method** |
| **Defect Density** | < 1 defect per 100 units | Testing reports, defect logs |
| **On-time Deliverables** | 100% on-time delivery | Schedule variance analysis |
| **Customer Satisfaction** | > 90% positive feedback | Stakeholder surveys |
| **Rework Percentage** | < 5% of total work | Defect and issue logs |
| **Compliance Rate** | 100% compliance | Audit reports |

**Quality Control Tools and Techniques**

* **Checklists:** Used for deliverable reviews and audits.
* **Control Charts:** Monitor project performance trends.
* **Pareto Analysis:** Identify root causes of recurring issues.
* **Fishbone Diagrams:** Analyze causes of defects.
* **Risk Assessment Tools:** Identify and mitigate quality risks.

**Continuous Improvement Process**

* **Lessons Learned:** Document quality issues and resolutions for future projects.
* **Process Reviews:** Regularly review and refine quality processes.
* **Feedback Loops:** Collect feedback from stakeholders and project teams to improve deliverables.

**Quality Issue Escalation Process**

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| **Issue Severity** | **Action Required** | **Escalation Contact** | **Response Time** |
| **Low** | Addressed by the project team. | Project Manager | 48 hours |
| **Medium** | Reviewed by QA Lead and Project Manager. | Project Manager, QA Lead | 24 hours |
| **High** | Immediate escalation to Project Sponsor. | Project Sponsor | 12 hours |

**Quality Audits and Reviews**

* **Internal Quality Audits:** Conducted by the QA team to ensure adherence to project quality standards.
* **External Quality Audits:** If applicable, performed by regulatory bodies or external auditors.
* **Phase Gate Reviews:** Quality checks at major milestones before progressing to the next phase.

**Corrective and Preventive Actions (CAPA)**

* **Corrective Actions:** Implemented to correct existing defects.
* **Preventive Actions:** Implemented to prevent potential defects.
* **Issue Tracking:** Documented in the project’s issue log and tracked to closure.

**Approvals**

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| --- | --- | --- |
| **Role** | **Signature** | **Date** |
| Project Sponsor | [Signature] | [Date] |
| Project Manager | [Signature] | [Date] |
| Quality Assurance Lead | [Signature] | [Date] |

**Conclusion**

This **Quality Management Plan** ensures that the project deliverables are produced according to defined standards, meet stakeholder expectations, and align with industry best practices. Through consistent monitoring and proactive measures, the plan ensures high-quality outcomes.