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

By

Aastha Lalit Motwani

**Name of Project:**

Integrated NPI Build Optimization Framework for Hardware Development

**Project Sponsor**

Self-Sponsored

**Project Manager**

Aastha Lalit Motwani (NPI Project Manager)

**Project Objectives**

1. **Streamline NPI Build Processes:** Develop an integrated framework for managing hardware build matrices, ensuring precision and readiness for critical components and assemblies.
2. **Optimize Vendor Collaboration:** Create a dashboard to simulate vendor collaboration, align lead times, and demonstrate methods to reduce supply chain delays.
3. **Enhance BOM Management:** Automate workflows for Bill of Materials (BOM) creation and manage engineering change orders to improve data accuracy.
4. **Mitigate Risks in Hardware NPI:** Identify and simulate risks (e.g., material shortages, design changes) to demonstrate effective risk management strategies.
5. **Data-Driven Decision Making:** Utilize predictive analytics and dashboards to track build readiness, supplier performance, and risk indicators.
6. **Ensure Manufacturing Readiness:** Oversee production readiness, including pilot builds, production line setup, and vendor compliance.
7. **Cost and Resource Optimization:** Manage project costs, resource allocation, and ensure alignment with project timelines and objectives.

**Project Scope**

* Develop centralized dashboards for NPI build tracking.
* Implement tools for vendor management and material forecasting.
* Coordinate pilot builds and manufacturing readiness.
* Implement quality assurance procedures aligned with product standards.
* Create risk mitigation frameworks and predictive analytics models.
* Produce portfolio-ready documentation and presentations.

**Project Deliverables**

1. **Centralized NPI Dashboard:** Tracks build matrices, clear-to-build (CTB) readiness, vendor status, and logistics planning.
2. **Vendor Collaboration Tool:** Simulates supplier collaboration with lead time tracking.
3. **Automated BOM Management System:** Workflow for creating and managing hardware-specific BOMs.
4. **Manufacturing Readiness Checklist:** Documented readiness for production ramp-up, including pilot build reports.
5. **Risk Mitigation Framework:** A model to identify, simulate, and resolve potential risks in hardware NPI.
6. **Final Presentation:** Comprehensive documentation showcasing the project.

**Project Milestones and Timeline**

* **Phase 1: Research & Planning (2 Weeks):** Understand workflows and gather data.
* **Phase 2: Dashboard & Build Matrices (6 Weeks):** Design and implement dashboards.
* **Phase 3: Material Forecasting & Vendor Management (6 Weeks):** Develop forecasting tools and vendor tracking.
* **Phase 4: BOM Structuring & Change Management (4 Weeks):** Automate BOM workflows.
* **Phase 5: Manufacturing Readiness & Pilot Builds (6 Weeks):** Coordinate pilot production runs and finalize production readiness.
* **Phase 6: Risk Mitigation Framework (4 Weeks):** Build risk management modules.
* **Phase 7: Testing & Finalization (4 Weeks):** Validate system and prepare documentation.

**Project Budget**

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| **Category** | **Estimated Cost (USD)** |
| Software Licenses (ERP, PLM, CAD) | $15,000 |
| Cloud Storage/Hosting | $5,000 |
| Learning & Development | $2,000 |
| Parts & Materials (Prototype & Production) | $100,000 |
| Manufacturing Equipment Rental | $50,000 |
| Transportation & Logistics | $25,000 |
| Quality Assurance & Testing | $15,000 |
| Pilot Production Costs | $30,000 |
| Regulatory Compliance & Certification | $10,000 |
| Miscellaneous Expenses | $5,000 |
| **Total Estimated Cost** | **$257,000** |

**Budget Justification**

* **Parts & Materials:** Procurement of high-end hardware components (e.g., processors, PCBs, mechanical enclosures) for prototyping and production.
* **Manufacturing Equipment Rental:** Costs for specialized manufacturing tools and production line setup.
* **Pilot Production Costs:** Expenses for pilot runs to test product scalability and manufacturing processes.
* **Transportation & Logistics:** Global shipping, customs duties, and warehousing fees.
* **Quality Assurance & Testing:** Testing equipment, certifications, and product validation.
* **Software Licenses:** Advanced ERP, PLM, and CAD software for project execution.

**Project Resources**

* **Software:** ERP, PLM, CAD tools, Power BI/Tableau, Python/R/SQL
* **Data:** Simulated BOMs, supplier data, lead times
* **Time:** 10-12 hours per week

**Risk Management Plan**

* **Risk:** Supply chain disruptions  
  **Mitigation:** Identify alternative suppliers and create backup strategies.
* **Risk:** Budget overruns  
  **Mitigation:** Implement cost-tracking tools and budget controls.
* **Risk:** Regulatory delays  
  **Mitigation:** Engage compliance experts early in the process.

**Communication Plan**

* **Weekly Progress Updates:** Document weekly goals and achievements.
* **Cross-functional Meetings:** Bi-weekly coordination with engineering, supply chain, and manufacturing teams.
* **Final Presentation:** Prepare a comprehensive report with visuals.

**Quality Management Plan**

* **Testing:** Validate prototypes through rigorous quality checks.
* **Continuous Improvement:** Apply lessons from pilot builds to improve final production.

**Change Management Plan**

* **Change Requests:** Document and assess changes.
* **Impact Assessment:** Analyze effects on timeline and budget.

**Project Closure Plan**

* **Deliver Final Presentation:** Summarize results and project impact.
* **Archive Documentation:** Store all project artifacts.
* **Lessons Learned:** Document insights for future projects.

**Approval**

* **Project Sponsor:** Aastha Lalit Motwani
* **Approval Date:** 01/10/2025