Lean Project

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Team: Megatech Engineers

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Part 1: Report on Manufacturing Industry

Industry Overview

- **Global Market Size:** $60B (2024), projected to reach $90B+ by 2030
- **Main Players:** Flowserve, KSB, Grundfos, ITT Inc., Sulzer

- **Growth Drivers:** Urbanization, infrastructure, clean water initiatives
- **Challenges:** Raw material cost volatility, global supply chain issues
- **Tech Shift:** Increased demand for energy-efficient, corrosion-resistant products

Industry Main Challenges: Last 10 years

Problems

- Inventory waste & frequent stockouts
- Longer lead times from fragmented supply chain
- Equipment downtime due to aging machines
- Disconnected data systems and lack of real-time tracking

Current Challenges and Areas for Lean Improvement

Current Challenges:

- Inefficient inventory management with overstock and stockouts, leading to high holding costs and production delays.
- Fragmented supply chain, aging equipment causing unplanned downtime, and disconnected data systems reducing operational visibility.

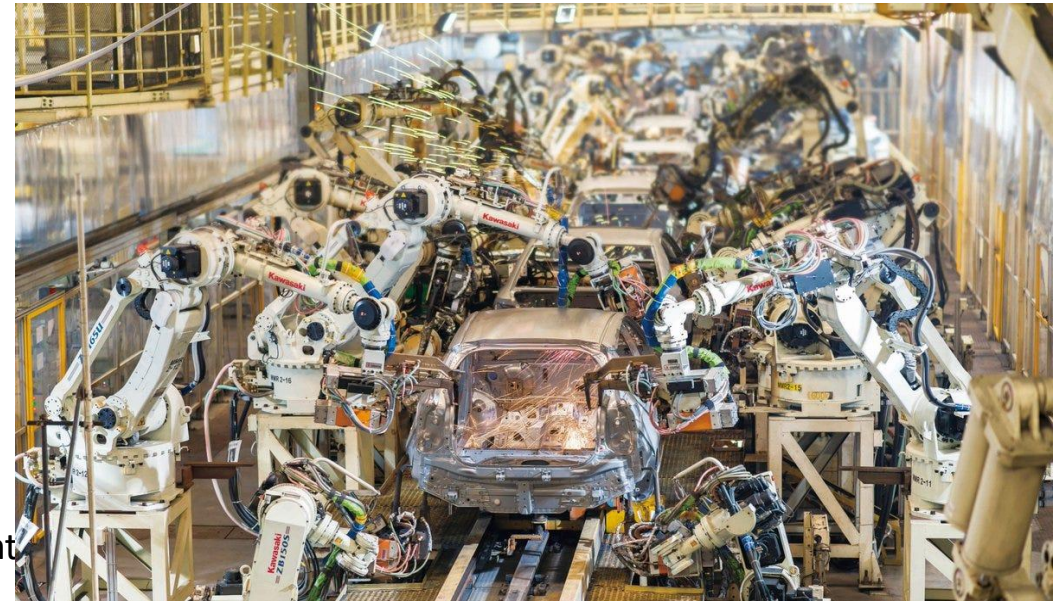
Areas for Lean Improvement:

- Implement **Kanban** for inventory control to reduce stockouts and overstock.
- Apply **5S** to organize workspaces, improve tool accessibility, and enhance equipment reliability.

Example of a Lean Incentive Accomplished in Last 10 years

What Was Done:

- Toyota expanded its **digital Kanban system** across global plants, integrating real-time inventory tracking with supplier networks.
- Automated replenishment signals reduced manual errors, and **5S standards** were enforced to streamline workspaces.



Measurable Results:

- **30% reduction** in inventory holding costs.
- **50% fewer stockouts** of critical components.
- **20% improvement** in production line uptime.

Lessons Learned:

- **Visual management** (Kanban/5S) must be paired with **employee training** for sustainability.
- **Digital integration** (e.g., barcode tracking) enhances accuracy but requires upfront investment.

Next Steps:

- Scale lean tools to **maintenance and procurement** (e.g., predictive maintenance, supplier Kanban).
- Launch **Lean Champion programs** to foster continuous improvement culture.

Part 2: Proposal for Megatech Engineers Company

Company Overview

Mid-Sized Manufacturer

Global Clients: Oil & Gas, Water Treatment, Chemical

$120M Annual Revenue

Focus on Corrosion Resistance & Sustainability

Analysis of Current State

Current Problems	Goals of improvement
Overstock & Stockouts	30% ↓ inventory holding cost
Supply chain delays, 8% defects	50% ↓ stockouts (seals, bearings)
15% downtime (aging equipment)	25% ↑ in equipment uptime
ERP, MES not integrated	Improve forecast & supplier coordination
Manual tracking, motion waste	5S + lean culture for daily improvement

What Problems We're Solving?

Frequent stockouts (10–15 day delays) for seals and bearings

Overstock: 18 % of storage space is underutilized due to excess inventory

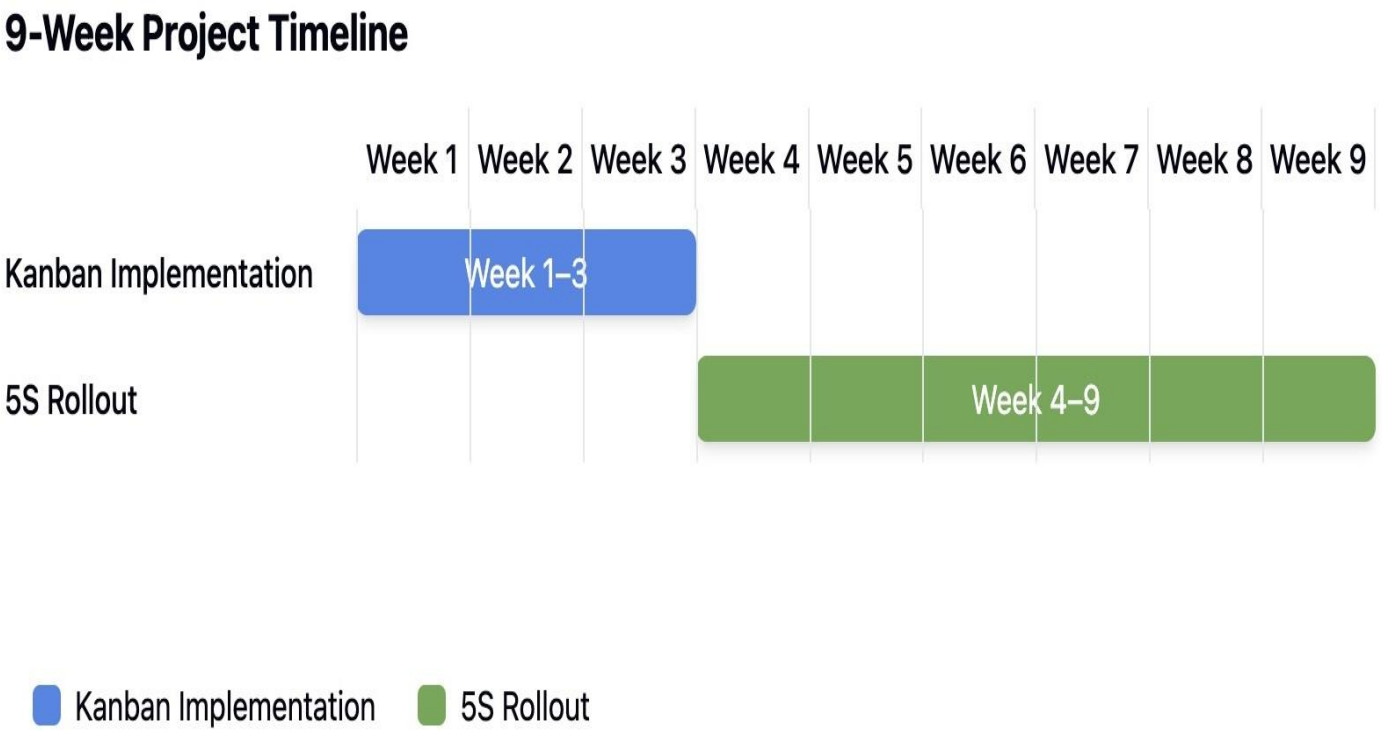
15 % unplanned downtime due to disorganized tools and no standard setups

ERP and MES systems are not integrated – leacling to 40 % rescheduling issues

Measurable Goals

- Reduce inventory holding costs by **30%**
- Cut stockouts (e.g. bearings, seals) by **50%**
- Improve equipment uptime by **25%**
- Decrease lead time variability by **20%**
- Maintain **35%+** 5S audit scores across key departments

Scope and Duration



Scope:

- Procurement
- Assembly
- Testing & Quality Control

Duration:

- Total: 9 weeks

  Week 1–3: Kanban implementation
- Week 4–9: 5S rollout

Key Milestone To Achieve Impact

Week 1–2

Identify top 20 SKUs and analyze material flow

Week 3

Implement Kanban board and reorder card system

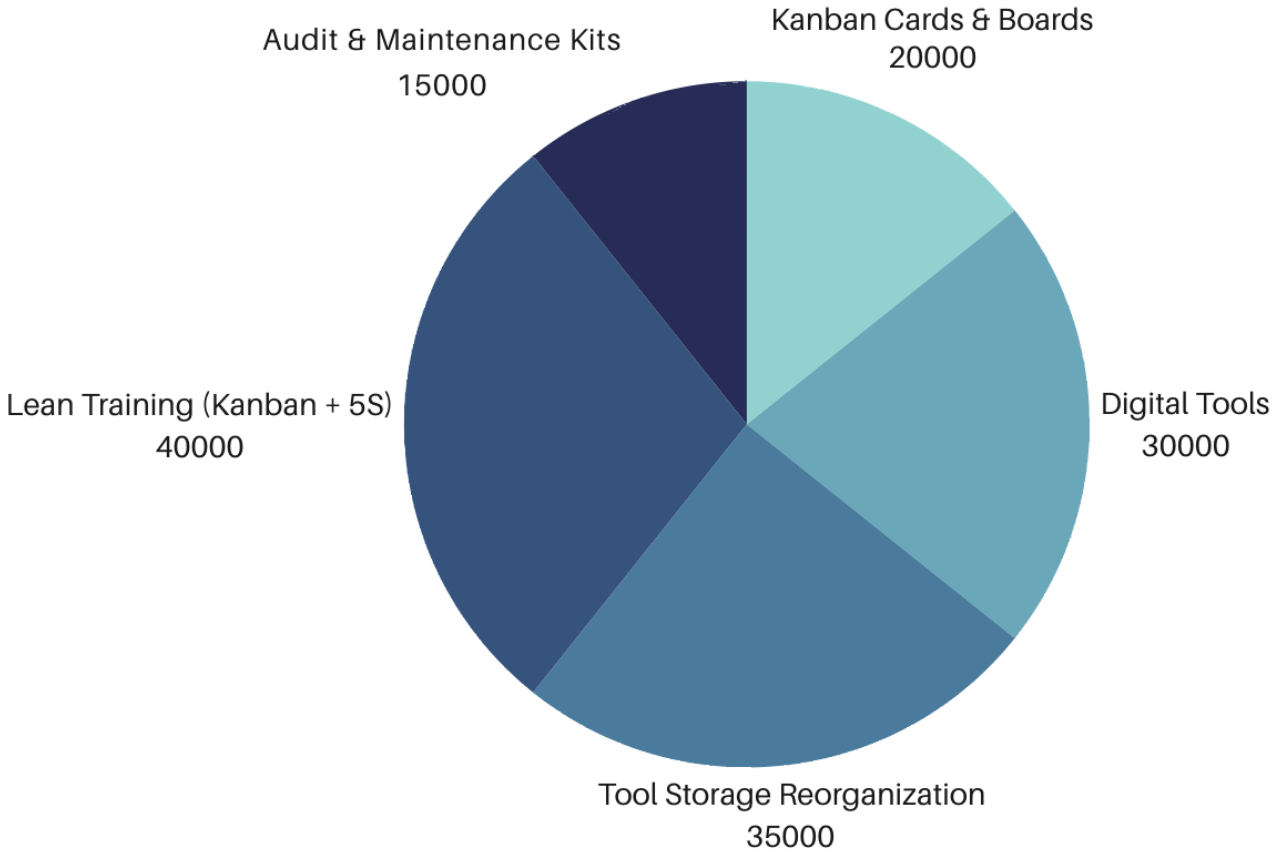
Week 4

Begin 5S in Assembly (Sort Set it in Order)

Week 5–6

Operator training and visual SOP rollout
Full rollout to Testing & QC + internal 5 audits

Proposed Budget



Total Budget: INR 1,40,000

Required Resources

- **Lean Coordinator (1):** Project lead and oversight (Week 1–9)
- **Procurement + Ops (2–3):** SKU analysis, Kanban setup (Week 1–3)
- **IT Support (1):** Visual board & tracking setup (Week 3–4)
- **Supervisors (2):** 5S audits & rollout (Week 4–9)
- **Maintenance Lead (1):** Tool reorganization (Week 5–7)
- **External Trainer (1):** Kanban + 5S training (Week 6)
- **Operators & Interns (4–6):** 5S execution, Kanban cycling (Week 5–9 & ongoing)

Steps for Continuous Improvement

Thank You!