

# Maintenance Strategy Optimization: From Reactive to World-Class

**Maintenance Strategy & Reliability Series**

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MAINTENANCE STRATEGY OPTIMIZATION: FROM REACTIVE  
TO WORLD-CLASS

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# **Maintenance Strategy Optimization**

## **From Reactive to World-Class**



# C ontents

## Chapter 1 — Why Maintenance Strategies Fail

1. The Reactive Trap
2. Misalignment with Business Goals
3. Lack of Reliable Data
4. Cultural Resistance to Change
5. Underestimating Skills and Training Needs

Case Example: \$1 Million Lost Due to Strategy Failure

Quick Diagnostic Checklist

## Chapter 2 — Maintenance Maturity Levels

Level 1: Reactive Maintenance (Run-to-Failure)

Level 2: Preventive Maintenance (Calendar-Based)

Level 3: Predictive Maintenance (Condition-Based)

Level 4: Proactive / Reliability-Centered Maintenance (RCM)

Level 5: World-Class Maintenance

Maintenance Maturity Self-Assessment

## Chapter 3 — Building the Foundation

1. Reliable Data: Turning Guesswork into Precision
2. Skilled People: Tools Are Only as Good as Their Operators
3. Maintenance Culture: Everyone's Job, Not Just the Maintenance Team's

Foundation Health Checklist

## Chapter 4 — Preventive vs. Predictive vs. Proactive: The Integration Mindset

1. Preventive Maintenance (PM) — The Scheduled Shield
2. Predictive Maintenance (PdM) — The Data-Driven Detective

**3. Proactive Maintenance — The Root Cause Eliminator**

**4. Why Integration Beats Isolation**

**5. Building the Integration Mindset**

**Example: Integrated Strategy in Action**

**Quick Integration Checklist**

**Chapter 5 – Mastering Failure Analysis: From Symptoms to Root Cause**

**5.1 Why Failure Analysis Matters**

**5.2 Common Failure Patterns**

**5.3 The Failure Analysis Workflow**

**5.4 Core Analysis Tools**

**5.5 Failure Documentation in CMMS**

**5.6 Case Study: Avoiding the \$200,000 Bearing Disaster**

**5.7 Quick Diagnostic Checklist**

**5.8 From Failure to Prevention**

**Chapter 6 — Total Productive Maintenance (TPM) in Practice**

**1. What is TPM?**

**2. The Eight Pillars of TPM**

**3. The Six Big Losses**

**4. TPM Implementation Roadmap**

**5. Operator Involvement Methods**

**6. Measuring TPM Success**

**7. Common TPM Pitfalls**

**TPM Readiness Checklist**

**Chapter 7 — Reliability-Centered Maintenance (RCM): Steps to Real-World Application**

**1. Understanding RCM's Core Philosophy**

2. The Seven Steps of RCM
3. Example: RCM Applied to an Air Compressor
4. Common RCM Pitfalls
5. RCM Implementation Tips

RCM Readiness Checklist

## Chapter 8 — Integrating Condition Monitoring (CM) into Your Strategy

1. Why CM Matters
2. Core CM Techniques
3. The Integrated CM Workflow
4. Turning Data into Decisions
5. Linking CM to RCM
6. Common Pitfalls
7. Quick-Start CM Implementation Plan

## Chapter 9 — The Maintenance Strategy Blueprint

1. The Four Pillars of the Blueprint
2. Step-by-Step Implementation Roadmap
3. Roles & Responsibilities Matrix
4. Common Integration Mistakes
5. Quick-Start 90-Day Plan

Key Takeaway

## Chapter 10 — Case Study: From Firefighting to Foresight

1. Background — The Problem
2. The Turning Point
3. Implementation — Step-by-Step
4. Results — 12-Month Impact

**5. Lessons Learned**

**6. Key Takeaway**

**Chapter 11 – Cost–Benefit Analysis of Maintenance Programs**

**X.1 Why Cost–Benefit Analysis Matters**

**X.2 Core Financial Metrics**

**X.3 Direct and Indirect Costs**

**X.4 Tangible and Intangible Benefits**

**X.5 Step-by-Step CBA Process**

**X.6 Case Study: Justifying Predictive Maintenance**

**X.7 Presenting the CBA**

**X.8 Key Takeaways**

**Chapter 12 – Roadmap to World-Class Maintenance**

**X.1 Defining World-Class Maintenance**

**X.2 The Four Stages of Maintenance Maturity**

**X.3 Key Performance Indicators (KPIs) for the Journey**

**X.4 The 8-Step Roadmap**

**X.5 Common Pitfalls to Avoid**

**X.6 Case Snapshot: From Firefighting to World-Class**

**X.7 The Endgame**

**Appendix I – Lean Maintenance**

**I.1 What Is Lean Maintenance?**

**I.2 The Eight Wastes in Maintenance (TIMWOODS)**

**I.3 Core Lean Maintenance Tools**

**I.4 Lean Maintenance KPIs**

**I.5 Cultural Enablers**