

Process Variation Root Cause Analysis Example

1. Background

Recent data indicates a variation in cycle time within **Process ABC**. This document outlines an example root cause analysis for the observed process variation.

2. Problem Statement

Over the past month, the average cycle time for Process ABC increased from 4.5 hours to 6.2 hours, exceeding acceptable variation limits.

3. Data Summary

| Week | Cycle Time (hours) |
|------|--------------------|
| 1 | 4.8 |
| 2 | 4.5 |
| 3 | 6.0 |
| 4 | 6.5 |

4. Possible Root Causes

- Machine downtime increased due to maintenance issues
- Variation in input material quality
- Operator shift changeover delays
- Process parameters drifts

5. Analysis

- Maintenance Logs:** Revealed unexpected downtime on 4 occasions during Weeks 3-4.
- Material Inspection:** Slight increase in variation for material batch received in Week 3.
- Operator Shifts:** No notable delays observed.
- Process Monitoring:** No significant deviations detected in standard parameters.

6. Root Cause Identified

The primary root cause for the process variation was identified as increased machine downtime due to delayed maintenance activities in Weeks 3 and 4.

7. Recommendations

- Implement stricter preventative maintenance schedules.
- Review and improve maintenance staff training.
- Monitor machine health dashboards daily for early indicators.

8. Follow-Up Actions

- Maintenance procedure review meeting scheduled for DD/MM/YYYY.
- Track cycle time weekly for next 8 weeks.
- Assess effectiveness of corrective actions after 2 months.

