Six Sigma Numerical Example – Cafeteria Tea Delay Problem

1. Problem Definition

The cafeteria promises: Tea must be delivered within 5 minutes. Any delivery above 5 minutes is a defect.

2. Data Collected (Sample of 50 Orders)

18 orders were late (>5 minutes). 32 orders were on time.

3. Defect Count

Defects = 18

Total Opportunities = 50

4. Defects Per Unit (DPU)

DPU = 18 / 50 = 0.36

5. Defects Per Million Opportunities (DPMO)

DPMO = (18 / 50) × 1,000,000 = 360,000

6. Sigma Level (Based on Standard Conversion)

DPMO = 360,000 ≈ 1.9 Sigma (Below 2 Sigma)

7. Interpretation

The cafeteria tea service is highly inconsistent. 36% of orders are late. Six Sigma improvement needed.

8. Improvement Targets

Short-Term Goal: 3 Sigma

Long-Term Goal: 4 Sigma

9. Summary

This example illustrates Six Sigma basics: defects, opportunities, DPU, DPMO, and sigma level.