

**RESULTS. BY THE NUMBERS.
GUARANTEED.SM**



**Assembly Cycle Time Variance Reduction
A Six Sigma Process**

Assembly Cycle Time Variance Reduction: A Six Sigma Process Executive Summary

Company Background: The Company involved in this case study is a worldwide manufacturer and distributor of engines, power generators, and related products.

Industry Served: Manufacturer in the engine industry

Process: Engine production was affected by this project.

Objectives:

- Reduction of cycle time variance between Industrial and Automotive ZIP-01 Assemblies in Assembly and Prep.
 - Assembly process time should drop from 110 to 93 hours per unit
 - COPQ should go from 25% to 65% testable
 - C-P should drop from 80 to 68 assemblies

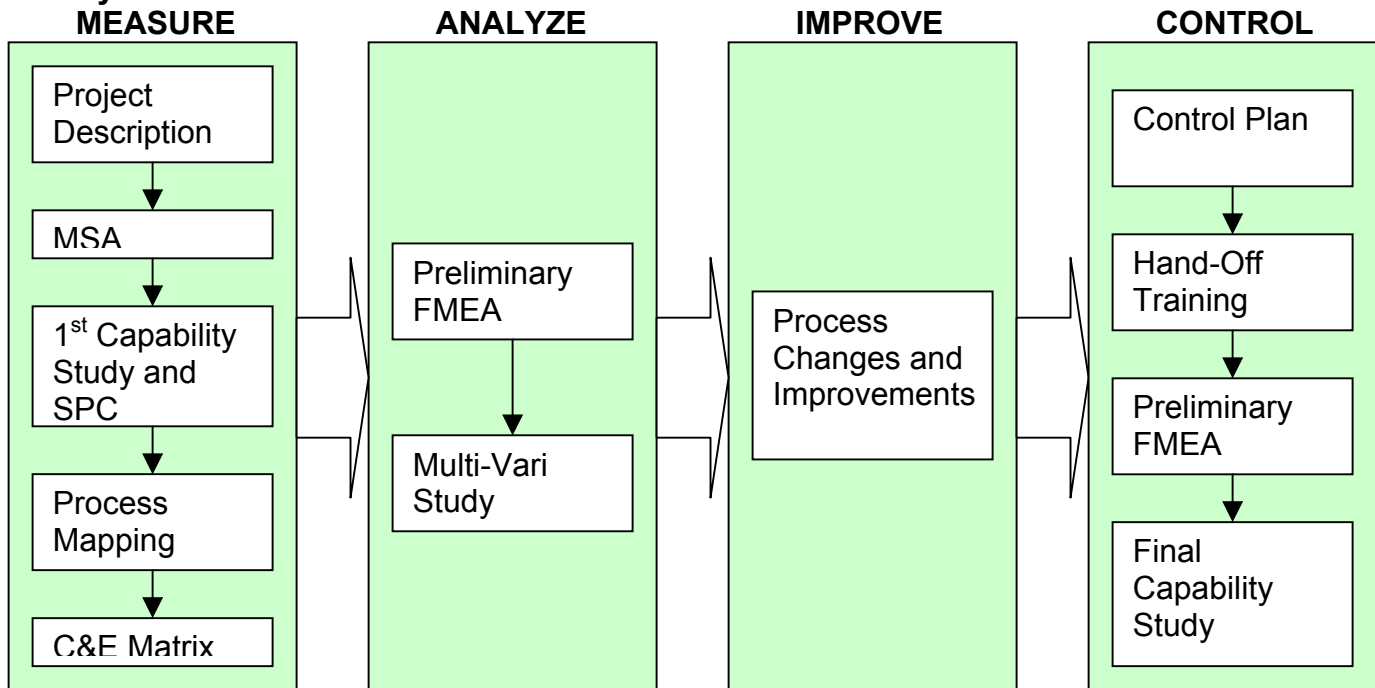
Financial Results:

- **Total savings of \$417,409 were realized**

Timeline:

- This project spanned **five months**.

Key Tools Used:

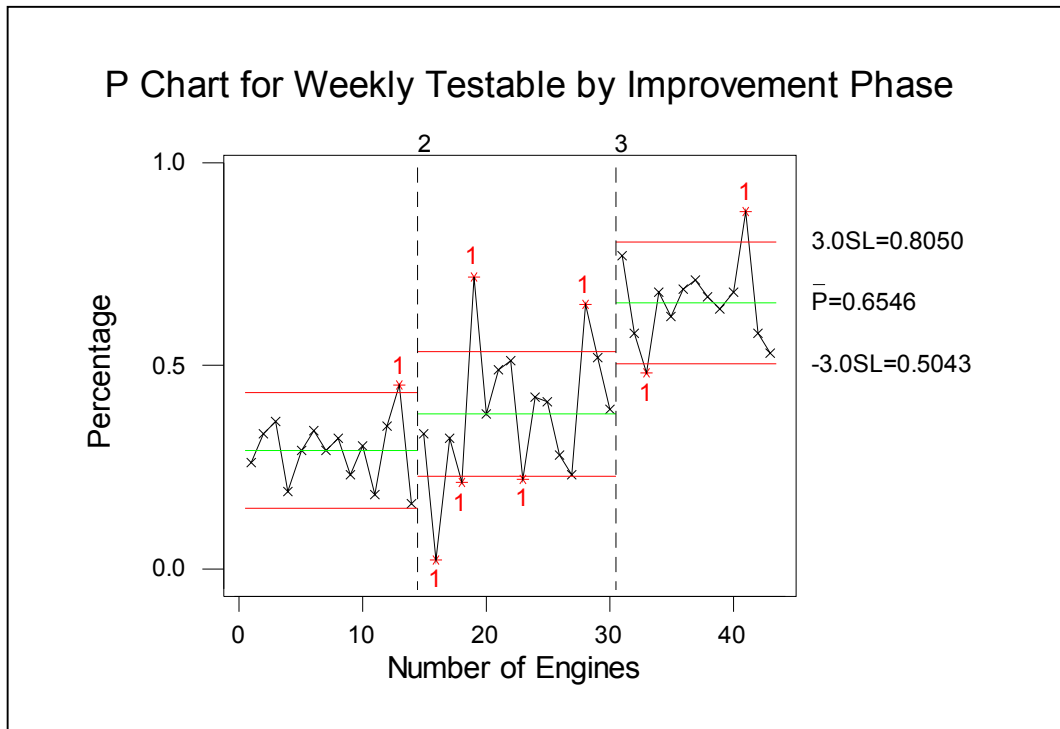


Special tools used in the Analyze phase include: Chi-Square, I-MR, Normality, Homogeneity, Kruskal-Wallis, Moods Median, Box Plot, Pareto Diagrams, P-Charts, ANOVA

Metrics and Results:

	Initial Process	Final Process
Quality: Cycle Time	110 hours	69 hours
COPQ: Testable percent	25%	70%
C-P: WIP	80 units	50 units

- Process improved from 1.83 to 3.23 sigma – an **88% improvement**
- Defects dropped from 622 to 71 for every 471 units produced
- All project goals were exceeded



Lessons learned:

- Use cross-functional teams in order to cover all functional areas of projects
- Daily meetings that look at assemblies in progress can make invisible problems visible.
- Make tools and training material readily available to teams