Breakthrough Case Study in Success

Business Excellence, Lean, Operational Excellence, and Six Sigma use science to solve business problems. Solutions improve profits. Six Sigma's classic **D**efine, **M**easure, **A**nalyze, **I**mprove, and **C**ontrol (DMAIC) cycle is handy way to summarize success.

PROJECT: Set Up Times

Issue: An enterprise was concerned about the wide variations in tooling set up times. Since every minute of time was valued at $45, every second counted. In addition to the salary wages and benefit costs related inefficient staffing, there was a potential opportunity to produce an additional 350K in revenue through effective time usage.

The quality council prioritized the selection of this project on the basis that it could produce an additional 350K in revenue.

Breakthrough DMAIC Strategy, Tactics, and Results

***Define*:** Management and workers seriously disagreed over the causes for the wide variations in set up times. Management wanted to reduce the workforce; workers were lobbying for an increase in the workforce, particularly at busy times. Suspected causes (hypotheses) for the significant variations in included:

- Hypothesis 1 (H_1): Some workers were lazy and others worked hard.
- Hypothesis 2 (H_2): The complexity of the set up was the key issue. Complex set ups simply took longer than simple ones.

Measure: Mr. Sloan delivered a one- day "Kaizen" training session for managers and workers. A series of just-in-time, 1:1 training sessions on data collection was provided to support staff people.

Working under the direction of this hands-on Master Black Belt and a management charter for breakthrough improvement, the team flow-charted set up processes, both complex and simple.

Simple data collection, check sheets were created so that the set up processes could be observed. Sets up times were estimated using a proxy measure.

Analyze: The significant effect patterns s which emerged from the check sheets, control charts, and interaction graphs made both sides of the set-up time argument laugh out loud.

Complex set ups took significantly less time than simple set up times, when the complex set up was performed by a team of two people working together. A simple set up took more time than a complex set up, when a team of two people completed the task.

People, being human, enjoy speaking to one another. Simple set ups provided an opportunity to socialize. This process helped build a sense of teamwork. Consequently, simple work progressed at a leisurely pace. When the chips were down, these teams could produce complex set ups fast.

Improve: When viewed in the context of the data analysis, both sides of the staffing argument were correct. Complex set ups went smoother when teams completed the tasks; simple setups went much faster when fewer (only 1) staff members were assigned to the work.

Control: Set up times were recorded and graphed using quality control charts to maintain the gains.

Financial Results: No new workers were hired and no existing employees were laid off. Not only did weekly operational costs go down, incremental revenue benefits achieved from improved set up times exceeded the 350K estimate. Total project time was about 90 days from start to finish.