

# Creative Healthcare

## Six Sigma Black Belt Deliverables

### DEFINE

- (1) Draft Project Charter.
- (2) Populated CTQ Tree.
- (3) SIPOC diagram.
- (4) Additional “Workshop Deliverables” from initial orientation (classroom students only).

### MEASURE

- (1) A trend analysis and histogram of data to establish the baseline performance of the process you are improving.
- (2) A Gauge Analysis (aka Measurement Systems Analysis or Gauge R&R). For attribute data, consider a Pareto Chart to demonstrate the "reproducibility" of measurements into discrete categories. For continuous and attribute data, consider running your analysis on two sets of data over two different time periods (a demonstration of "repeatability"). You may also elect to use the Gauge R & R worksheets provided either during your training or in the CBT. Only certain projects will be able to make use of this particular form of analysis.
- (3) A Data Collection Plan setting forth the metrics you intend to measure.
- (4) A Capability Analysis for the process you are measuring.
- (5) Revised project goal, if applicable. Often, the project goal becomes revised once reliable measurements are taken. Your "reality test" may cause you to believe either greater or less ambitious goals are appropriate.

### ANALYZE

- (1) Results of group participation in a Six Sigma exercise designed to identify all relevant process performance inputs without regard to whether they are critical or not.
- (2) Micro Problem Statement.
- (3) A sub-process map based on your high-level process map that illustrates sequential steps in the process.

- (4) Identification of hypothesis test(s) selected, with the null and alternative hypothesis clearly stated, for each input being tested.
- (5) Presentation of test results and practical conclusions.
- (6) Analysis of variance, both software output and in-depth interpretation.
- (7) Presentation of final Critical Xs (at least one must be presented that was statistically validated).
- (8) Discussion of anticipated challenges in the Improve phase, and any special support necessary outside your own areas.

## **IMPROVE**

- (1) A draft FMEA demonstrating the relative importance of your intended solution (the final FMEA will be a deliverable in "Control").
- (2) Description of Improve initiative(s) you have undertaken as a result of the FMEA and earlier findings from your project.
- (3) Results of these efforts in quantitative form.
- (4) Identification of potential "consequential metrics" from your efforts (i.e., possible negative consequences in other parts of the organization that may occur as a result of your efforts) that require monitoring together with the monitoring of your "Y" (See "Improve Critical Questions" in the CBT).
- (5) Hypothesis test to validate impact on your "Y" metric.
- (6) Practical conclusions.

## **CONTROL**

- (1) Completely populated FMEA.
- (2) Completely populated Control Plan.
- (3) Demonstration of sustainability; proof that process is stable around improved metric.
- (4) Create and interpret Control Charts for improved process.
- (5) Practical conclusions.
- (6) Possible project extensions.