**Lean Six Sigma Black Belt Project Template**

**Overview**

1. Briefly describe the company. What does it do?
2. What is the business opportunity?
	1. Name the key problem/improvement opportunity.
	2. What process needs to be improved?
	3. Is there an external or internal benchmark?
	4. Is there a sub-process you are focusing on?
	5. Briefly describe the potential dollar benefit to the organization by improving this process.

**Supporting documents/charts:**

Voice of the Customer (is there any collected evidence that points to the above problems/opportunities?) Provide appropriate charts.

**Define**

1. What is your SMART objective?

What is the specific variable you wish to improve? (little y)

What are its units of measurement? (cms, lbs, scale of 1 to 10, hours, minutes, etc.)

How will it be measured? (survey, actual measurement, etc.)

What is its current value?

What is the desired value? (Do you have an external or internal benchmark? Remember to focus on improving both the mean and the variation!)

By when do you expect to achieve this objective?

**Supporting Documents**:

**Qualitative Analysis**

1. Charter
2. SIPOC including High Level Flow chart (4-6 steps)
3. Value Stream Map (look for delays, WIP, excess inventory, percent of time spent on value added activities)
4. Detailed process flow chart to identify non-value-added activities.

**Quantitative Analysis**

1. Segment data as you think appropriate (drill down to the areas of importance)
2. Show a time series plot of y.
3. Show a histogram of y. (Process Capability index if possible)
4. Show descriptive statistics for y (mean, median, standard deviation, etc.)

**Measure**

1. Identify and describe briefly the potential causes of y (the Xs).

**Supporting documents**

**Qualitative Analysis**

1. Draw a fishbone diagram to identify potential causes of y (X variables).
2. Do an FMEA analysis also to identify potential Xs and evaluate their impact.
3. Do a SIPOC of the sub-process that becomes the focus of the remainder of the project/presentation. Include a column for measures for each outcome. (SIPOCM)

**Quantitative Analysis**

1. Univariate analysis of each X. (histogram, time series, control chart, descriptive stats)
2. Drill down as needed for each X. Are there segments by which each variable should be looked at? (Region 1 vs. 2, Male vs. Female, Quarter 1 vs. Quarter 2, etc.). Look for categorical variables as the segments in which to view the data.

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**End of Phase I** – Must be submitted before project presentation. Projects must be presented at the end of Phase I in order to get feedback and approval so you can make changes/improvements as necessary.

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**Analyze**

1. Describe briefly which of the potential Xs turned out to be the most related to the y (explain the most variation in y).

**Supporting documents**

1. Scatter Plots and Correlations of each X with Y.
2. Regression of all the Xs with the Y, with insignificant Xs dropped.
3. Brainstorming/Ranking by Experts of the Xs. (e.g. Delphi Technique)
4. Pareto Charts.

**Improve**

1. Discuss briefly the recommendations that follow from your analysis. Are there specific values of the Xs that lead to the desired y? (Trial and Error, DSS, DOE, Simulation, etc.)

 Demonstrate that there was a significant improvement.(Hypothesis testing)

**Control**

1. Discuss the procedures you would put in place to keep the gains achieved, and to monitor the process in the future (e.g. Dashboards, spreadsheets).

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**End of Phase II** – Must be submitted for project completion. (For final approval, a second presentation may be required)

**General Project Guidelines**

1. Your project should be a Six Sigma DMAIC improvement project. Ideally it will also include lean methods and tools, and have a dashboard output.
2. Remember that the purpose of this project is to demonstrate your knowledge and skill in using as many of the LSS tools as possible (when appropriate, of course).  You have lots of great tools – use them! For example, the Charter, SIPOC, Value Stream Map, FMEA, fishbone, Pareto, RASCI chart, descriptive statistics, regression analysis, dashboards, and many more tools are appropriate and useful for all projects. Consider 5S and other lean tools prior to Six Sigma analysis to make your process “Six Sigma ready.”
3. You may use real or simulated data for your project.
4. Data analysis leading to project recommendations is required for all projects. It is not acceptable to show a process, and then recommend obvious solutions (such as automation or elimination of current process steps). Your analysis should *lead to* your recommendations!! Analyze all of your measures individually (univariate analysis) and then together (multivariate).
5. Your project presentation should tell a "story".  Each slide should lead logically to the next.  Interpretation of each slide should be documented in the heading or footer.
6. You will be required to make a presentation of your project. Be sure to keep your presentation to a maximum of 15 slides, with additional details in the appendix at the end (shown only if asked a direct question when presenting). Minimize your coverage of organizational background information. You will be required to limit your presentation to 20 minutes plus 10 minutes for questions. Our monthly Community Meetings have been created for this purpose. Project presentations should be scheduled at least a month in advance to assure your opportunity to present. A written report in Microsoft Word is ***not*** required!
7. You may work with another person on your project. However, be sure to clarify the roles, responsibilities, and timing for each team member in your project proposal and final presentation.
8. You have one year from the last day of your LSSG workshop to complete your project. An extension may be granted if you can demonstrate significant and active progress at that time.