MBC 638 Data Analysis and Decision Making

Process Improvement Project

(Individual Project)

Course Learning Objectives:

* Help students understand the value of data collection and analysis in acquiring knowledge and making decisions in today’s business environment.
* Students will be able to identify and apply the appropriate statistical technique for a given set of conditions in order to answer a particular question.

The goal for this project is to (1) identify the problem of the process, (2) implement DMAIC method to improve the process, and (3) utilize statistics tools to analyze and compare before and after.

In this project, I have learnt how to implement DMAIC method for a process improvement project. In the Define phase, I was able to determine walking distance variable as my output (y) and set up a goal for 4 miles per day.

In the Measure phase, I have decided how will collect the data of my process and clearly stated out that 9 day of data are history data. And, I identified some potential variables that could affect my output (y) by using Data Stratification Tree. Also, I used statistics tool to estimate my sample size and calculated the margin of error of the sample mean of output (y).

Several tools were used for the Analyze phase, such as SQL, Pareto Chart, Hypothesis Test, Confidence Interval, Multiple Linear Regression and Control Chart. SQL level has been calculated as 0.2 which indicates that my process is very poor. Pareto Chart shows that I should be more active. The Hypothesis Test proves that performance of my process did not reach my goal. Confidence Interval states that my process performance is below my goal. Multiple Linear Regression shows that number of floors variable, lunch walk variable, workout variable, and number of active hours variable are statistically significant on my output y. The Control Charts implies that I may need to review my process based on dramatic shifts on Moving Range Chart.

In the Improve phase, I have determined the improvement actions based on the analysis from Analyze phase. The SQL level has been improved from 0.2 to 1.3. The Hypothesis test proves that the performance of my improved process still not reach my goal. The confidence interval states that my target is within the interval. The control chart has been more moderated and random.

For the Control phase, I made a conclusion that I have improved my process and the average output is closer to my target goal.