Overview
Exel is a third party logistics and Supply Chain company that manages the Regional Distribution Center #5034 for the Home Depot. Currently, the Management Team has an accuracy maintenance problem for their palletizing process in Breinigsville, PA. The goal of the project was to analyze process data to determine sources of error for palletizing. Additionally, improvement tools were created to successfully achieve and sustain the goal of 99.6% pallet accuracy set by the Home Depot.

Objectives
The objective of this project was to analyze current process data and develop improvement tools that will allow Exel to successfully achieve and sustain the goal of 99.6% pallet accuracy at the outbound palletizing area of the Breinigsville distribution center.

Approach
A DMAIC Approach was used to find solutions to sustain the full pallet accuracy goal of 99.6%. DMAIC is an acronym for define, measure, analyze, improve, and control and is the core of most Six Sigma projects. The define phase was conducted first in order to identify and validate possible opportunities to improve the palletizing process. The team visited the Breinigsville facility twice to gain a better understanding of the process. Next, the measure phase involved reviewing the data received from Exel regarding the palletizing accuracy variables. The team requested data from Exel that was hypothesized to be affecting the accuracy, including pallet volume, worker shift length, pallet location, time of day, day of week, and with/without co-load. From this data, a correlation and regression analysis was conducted in order to determine the relationship between the variables investigated. Based on the regression and correlation analysis, an accuracy forecasting tool was created in order to examine the impact each input variable has on the accuracy of the cartons being placed on the pallets. Ergonomic factors, such as bending, lifting, and distance traveled, were also analyzed.

Outcomes
The output of the regression model concluded that the process variables do not significantly affect palletizing accuracy. Therefore, most of the potential for improving palletizing accuracy lies with the employees, not the process. The team compiled a list of recommendations to improve employee training and morale, including repainting of numbers for all of the pallet locations, the potential for music on the work floor, a new training video, and the tracking of individual performance metrics. Additionally, the Exel management team can continue use the forecasting tool to predict accuracy when they collect data about individual performance.