DHL Supply Chain Optimization Fall 2016

Overview

DHL Supply Chain serves as a 3PL for a Dollar Tree and Family Dollar Distribution Center in Jersey City, New Jersey. The team was tasked to improve their supply chain operations by narrowing down the scope into two main problem areas. The first area is the recycling of cardboard when it returns from the Family Dollar stores, and the overall layout of the DC floor, with a focus on the area where the baling of cardboard is done. The second problem area being focused on is the loading and unloading of U-Boats at both the DC and at the site of delivery. The team believes that this process can be done in a way to shorten the amount of time it takes a driver to complete a delivery.

Objectives

- Redesign the current process in place for the recycling of the boxes for Family Dollar and improve facility layout in baling area
- Overall process layout improvement for the loading and unloading of the U-boats at both the DC and at the site of delivery

Approach

The main approach the team took to completing this project was to optimize DHL’s current processes by making them more efficient and cost effective. After meeting with our sponsor, the team visited the Distribution Center site. By seeing the process first hand, the team clearly defined two primary stages for the project. There appeared to be a lack of floor layout and process for the recycling of the cardboard boxes. The team used a simulation software, Simio, to simulate both the current process and improved process of the recycling. The results were statistically analyzed to determine the effectiveness of the new system. The second stage was the loading and unloading of the U-boats onto the trucks. The team used system designs to determine the most optimal layout of placing the U-boats.

Outcome

The team was able to create an optimal layout for the recycling of the cardboard. Using the Simulation model, we were able to determine improvements for the new recommended layout. The goal was to maximize utilization of the baler and allow for the most effective disposal of the cardboards. The results show that the flowtime decreased by 70% and the throughput increased by 90%. The redesign of the unloading and loading of the U-boats onto the truck is also more efficient by increasing the amount of deliveries per truck by 33.3%.