Life Technologies 2 - Dry Product Packaging and Finishing Optimization

Overview
Life Technologies is a biotechnical company whose Buffalo, NY plant packages liquid and dry powder chemical products. The dry powder product side is currently being packaged manually. The one automated machine that exists is too hard and takes too much time to set up. Life Technologies requires a solution to improve their dry powder packaging and finishing processes.

Objectives
To find a solution to support the company with future growth, productivity and service levels to customers within the powder packaging system.

Approach

After visiting the plant, the Capstone Team approached solutions in a few different ways. 5 different solutions were considered, and proposed to Life Technologies. These solutions included: purchase a semi-automated filling system, purchase a fully-automated filling system, redesign the Perfil machine, improve their material handling process, improve the finishing room layout. Each team member was in charge of researching one solution.

For the new machines, research was conducted to identify vendors that can meet all of Life Technologies packaging needs. For the Perfil redesign, videos of the entire process using the Perfil was analysed and certain processes targeted as waste. Certain parts of the Perfil could be machined to be combined, thus decreasing the amount of parts needed to be put together. For the material handling improvements, the AMS room and the finishing rooms were analysed. It was determined that a conveyor system could decrease the transportation time used to transfer products from the AMS room to the finishing room. For the finishing room layout improvements, System Layout Planning was used to eliminate waste. An Arena simulation was conducted to validate the need for this change.

A prototype of each room that would be changed, or where a machine could be possible added was created using foam board. Each room was created to represent what the new layout could look like.

Outcomes

A Proposed Solutions Manual was provided to Life Technologies to use as a guide for future implementation. The company may pick and choose which solutions they feel is most appropriate, as well as fits into their budget. Should they implement the fully automated machine option, they can increase their product fill rates by 1440%. If they choose to implement the material handling changes, as well as finishing room layout changes, they can improve their cycle time by up to 33%. The redesigned Perfil option will allow the company to save the machine they already have, but improve set up time by 1 hour.