USJT Slotting / Replenishment Improvement Project

Overview
Ingram Micro Inc.’s Jonestown distribution center currently processes a large volume of orders each day and wants to improve the productivity of the Repack Pick Module. A thorough analysis of bin sizes was conducted, as optimal bin sizing will decrease the amount of replenishments needed daily. An effective slotting program is desired to ensure the proper location of high velocity SKUs. The overall goal is to increase picking productivity by 10% and to realize a cost savings on labor of 5-10%.

Objectives
While realizing a 10% increase in productivity and a cost savings on labor of 5-10%, the objectives were to (1) conduct an analysis on bin size to reduce the amount of replenishments being created daily, ideally concentrating replenishment to third shift only, (2) to engineer formulas for an effective slotting program to match high velocity SKUs to their proper bin locations, and (3) to propose a repeatable replenishment system that eliminates “hot” replenishment and allows for “On-Demand” replenishment.

Approach
- Access queries were used to narrow down about 17 million SKUs to only reflect the current Q4 SKUs, and to also calculate the picks/day and the quantity/day. This was then stored in Excel.
- Pivot tables allowed for the average, standard deviation, and maximums to be found for picks/day and quantity/day.
- Using the picks/day data, an ABC classification based on the intervals was determined. The highest velocity SKUs were given the A classification while the slowest moving were called C. Inventory review for each SKU is as follows: A every 2 days, B every 3, and C every 7.
- The quantity/day data allowed binning calculations to be conducted, showing what the optimal size allocation would be. This allocation was then sectioned into five standard bin sizes.
- Trigger points were calculated using lead times of 1/average picks per day and a 90% service level.

Outcomes
- 13.92% reduction in picker distance travelled as a result of the slotting system
- Employee Labor Savings of $1.96/hr/picker, or $62,204 in Q4
- Ingram will see a 7.7% cost savings on labor
- 10,600 foot reduction of linear shelf space needed which can be sold to other vendors