MIT Supply Chain MANAGEMENT

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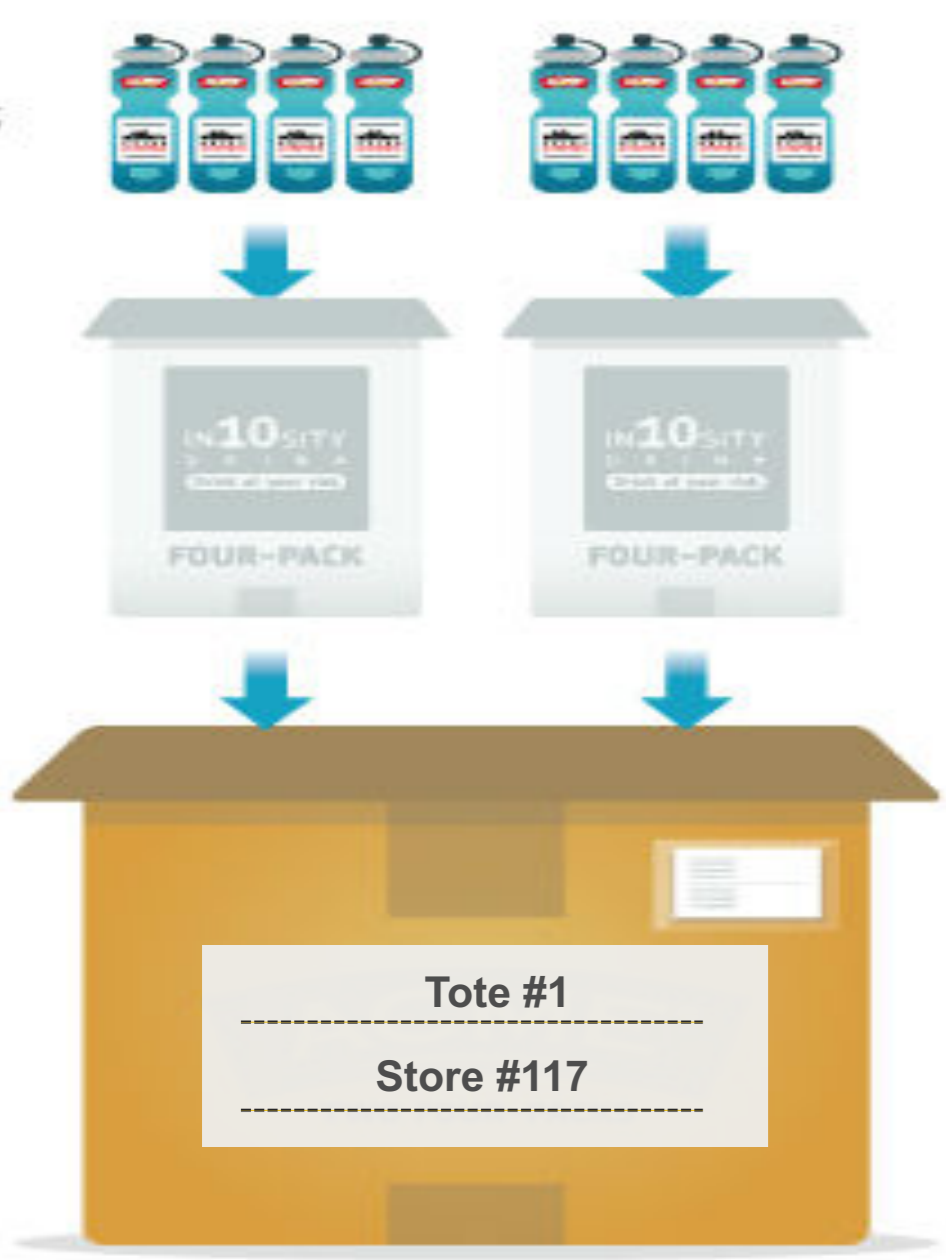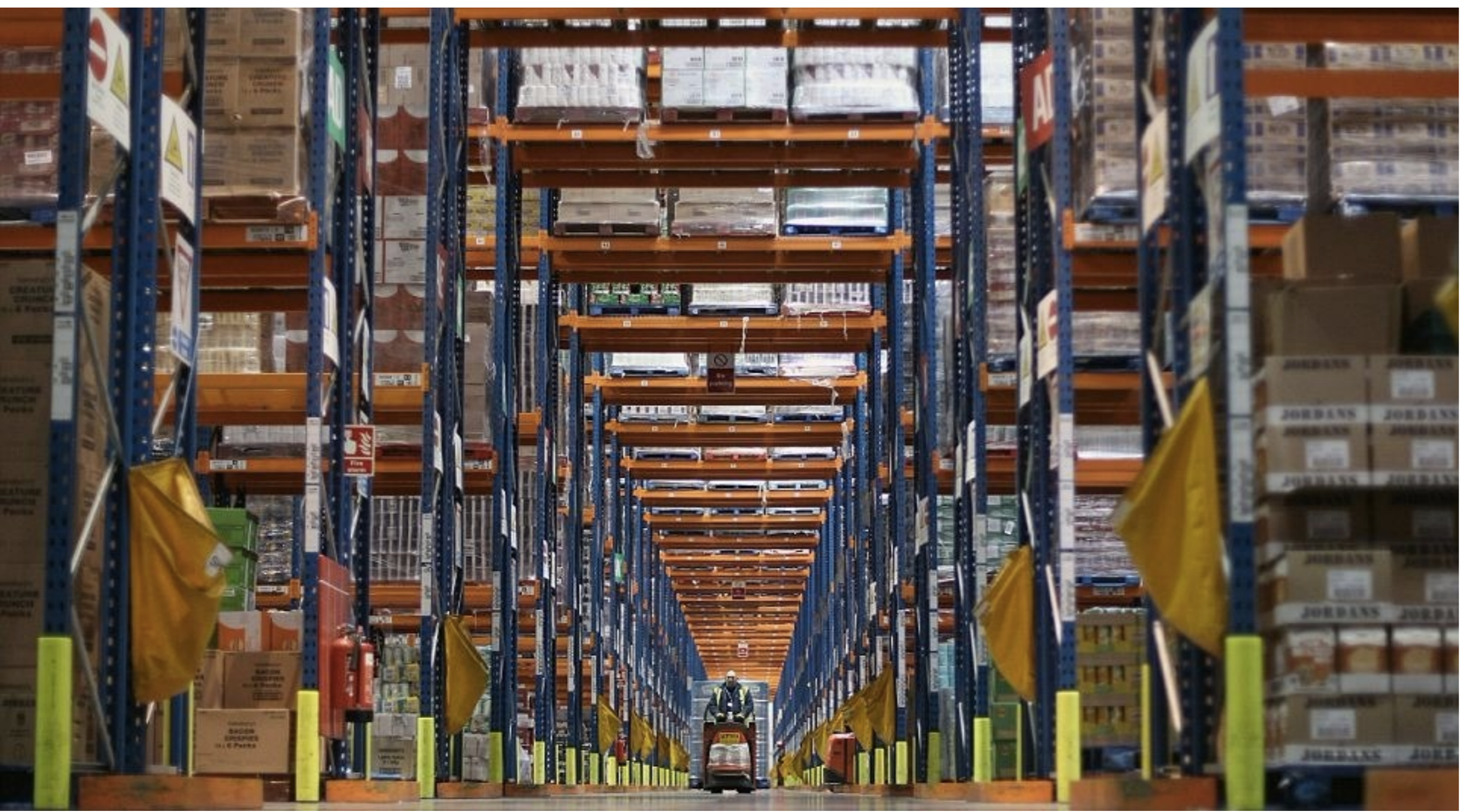Advisor: Dr. Bruce C Arntzen
Sponsor: The CVS Health corporate
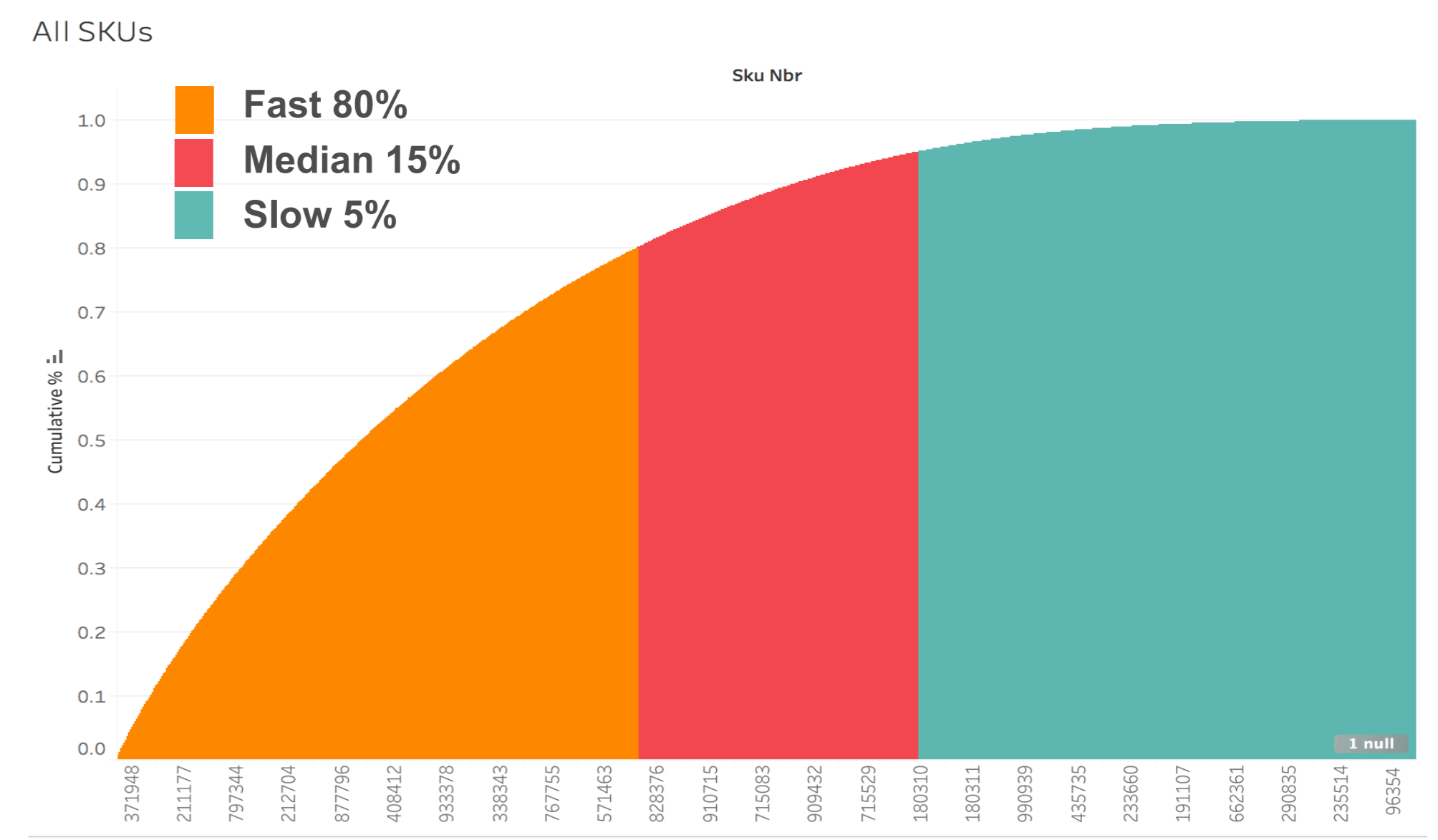
Optimizing Product Group Segmentation

Background

Piece Pick operations are the largest component in the retail logistics payroll of a retail pharmacy and health care company.

Pick Rack organization:
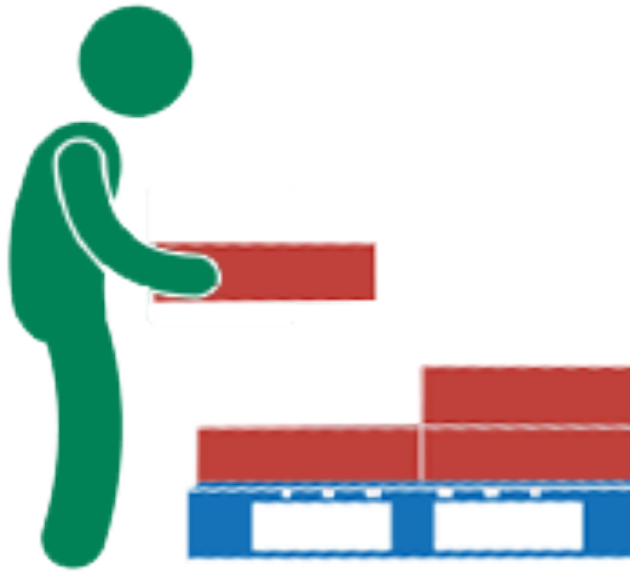- Product "Family Grouping"
- Store service efficiency constraints

Tote #1
Store #117

Key Question / Hypothesis

To improve product "slotting" methodologies for the company to reduce labor expenses and improve space utilization.

Relevant Literature

- Sheffi, Y. (2014). Logistics clusters: delivering value and driving growth
- Schönsleben. P (2011). Integral Logistics Management: Operations and Supply Chain Management Within and Across Companies

Constraints

- No Change to Current Process
- <= 4 Family Groups per Tote
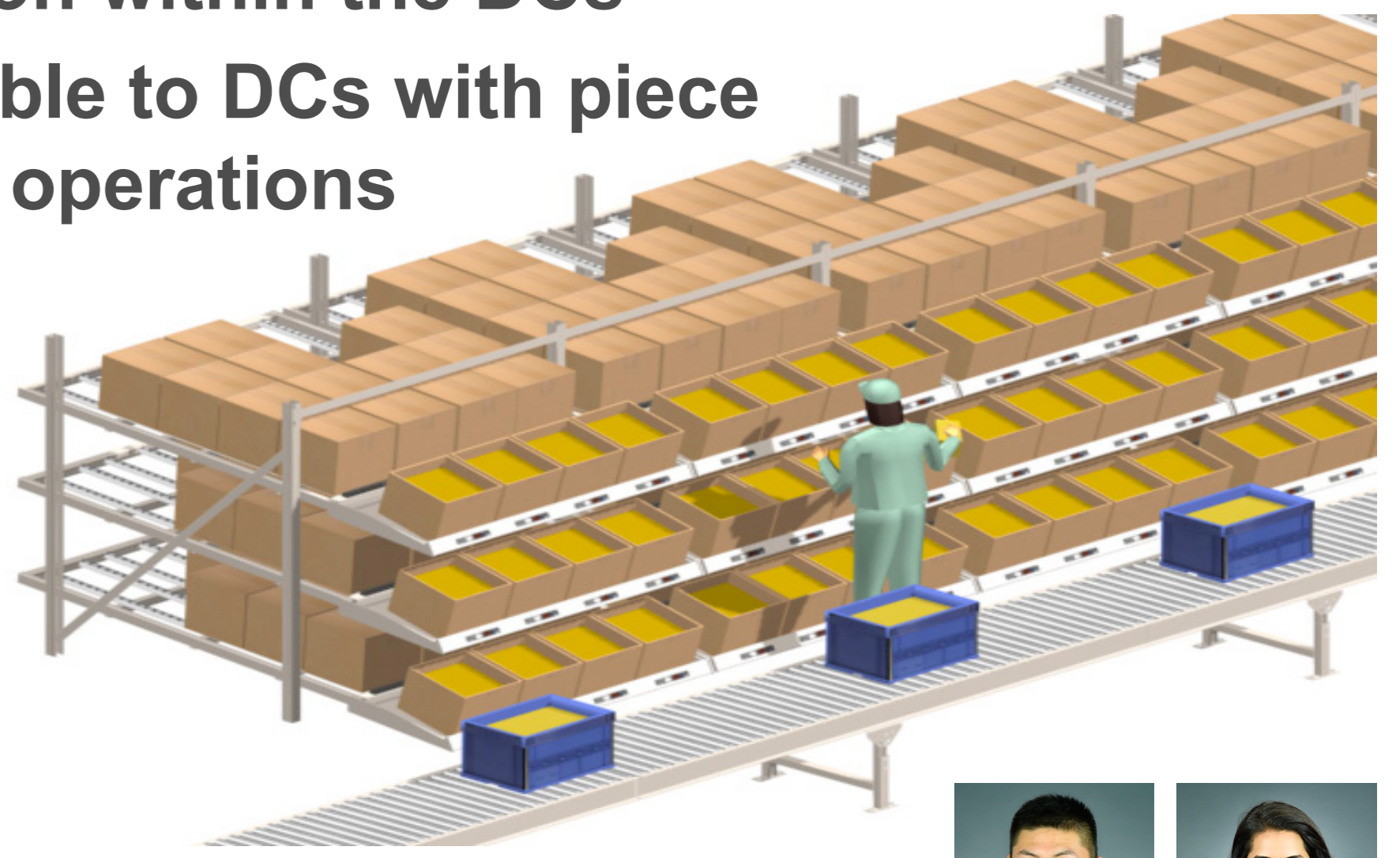- Put-on-Shelf Efficiency for Stores
- 1 Quadrant per Tote

Methodology

- Data Analysis for SKU segmentation based on Quadrant, SKU Family Group and Order Frequency
- Model simulation to test the effect on piece-picking productivity

Initial Results

- ABC Segmentation based on Moving Speed

All SKUs

Fast 80%
Median 15%
Slow 5%

Sku Nbr

Cumulative %
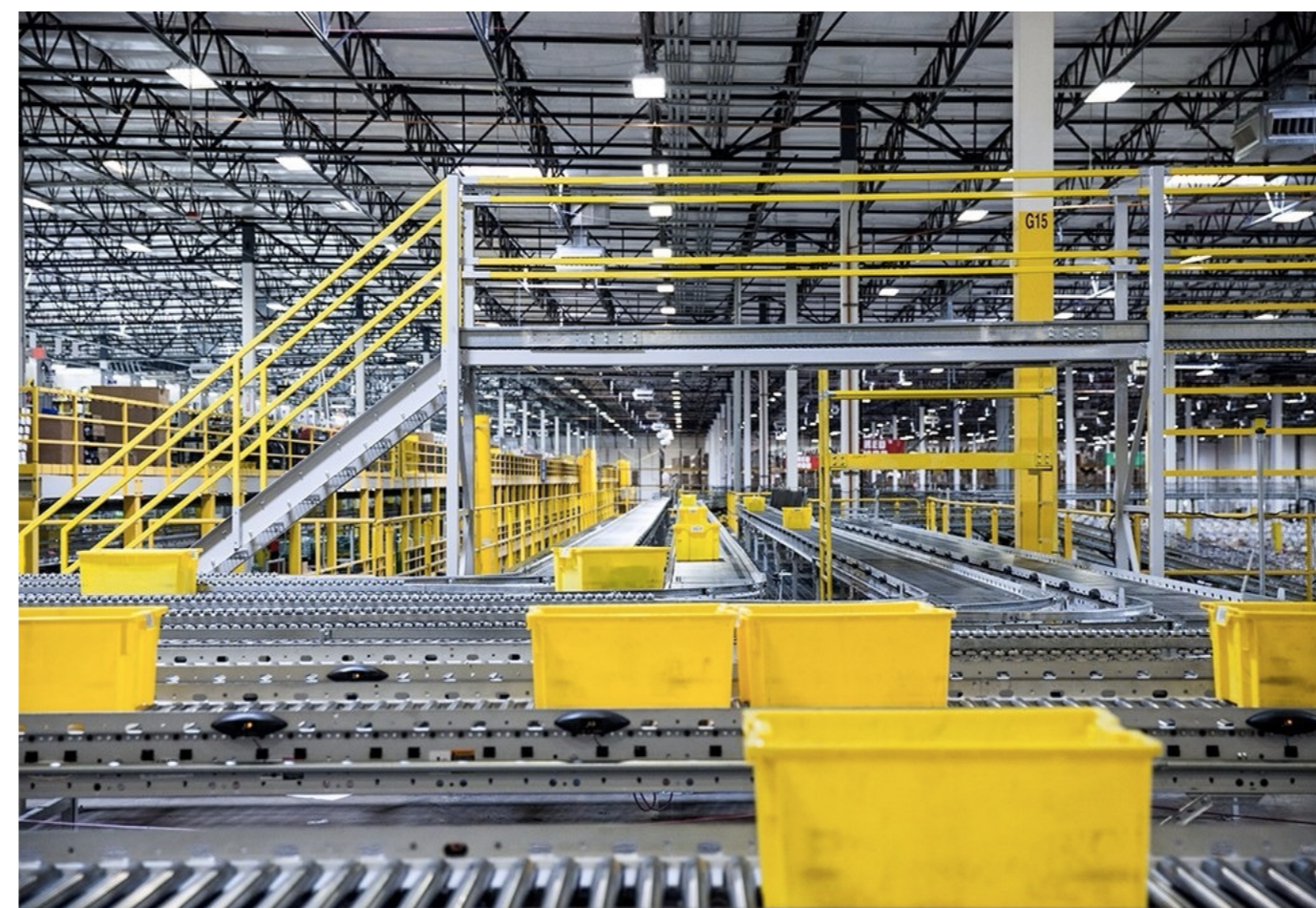
Expected Contribution

- Reduce labor expense and improve space utilization within the DCs
- Applicable to DCs with piece picking operations

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