Eastside Baby Corner: Streamlining the Process for Inventory Reception, Storage, and Distribution

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Background

- Eastside Baby Corner (EBC) is a nonprofit organization that distributes essential items such as clothes, toys, and school supplies to low-income families with children.
- Most of their items are donated, while high-demand items such as car seats and diapers are purchased by EBC.

Motivation for Project

EBC’s primary inventory warehouse has various inefficiencies in their storage and handling of items. Our team was expected to identify these inefficiencies and come up with innovative solutions to resolve them.

Goal Statement

Increase EBC’s productivity through improvements in their material handling system.

Acknowledgements

Thanks to our advisor, Patty Buchanan, for providing guidance throughout our project. Thanks to the EBC team, Wanda, Angie, and Madeline, our project sponsor, for encouraging us to pursue all our ideas. Lastly, thanks to the ISE department for supporting and funding all of the changes we implemented.

Diaper Process Consolidation

<table>
<thead>
<tr>
<th>Size</th>
<th>Number of Order Groups per Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>38-42</td>
</tr>
<tr>
<td>3/4</td>
<td>28-32</td>
</tr>
<tr>
<td>6</td>
<td>23-27</td>
</tr>
</tbody>
</table>

Number of Orders

<table>
<thead>
<tr>
<th>Size</th>
<th># of orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Process Improvement Impact & Results

- Diaper Process Consolidation
  - Improves efficiency in bin filling process
  - Decreases process by 2 hrs

Excess Movement

Toy Organization

- 3 Raised tables with shelving were implemented
- Out-of-season and new toys were boxed and relocated to external storage units
- 30 14-gallon bins now organize school supply storage

Flyer

- Saves $40-60 per week based on projected decrease in waste
- 16 ft² of wall space repurposed, 9 ft³ and 14 ft² of space saved

Unit 143 Reorganization

- Reduces searching time by 5.7 hours per week saved
- 253 ft² & 964 ft³ of cleared or repurposed space
- $3840 per year in opportunity costs
- 24 trips to external storage per week eliminated
- 5 ergonomic improvements

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  - Excess Movement
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  - Excess Movement
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  - SS Tool Wall
  - Andon Signals
  - Automated Bin Assignment
  - Updating Bundle Items
  - Toy Organization
  - Flyer
  - Unit 143 Reorganization
  - 5S Tool Wall

Space Utilization

- Toy Organization
  - 3 Raised tables with shelving were implemented
  - Out-of-season and new toys were boxed and relocated to external storage units
  - 30 14-gallon bins now organize school supply storage

Utilizing Vertical Space

Legend:
- Magenta - Walking lane
- Red - Unit door
- Green - Diaper stacks
- Blue - Lofts
- Black - Exterior walls

Excess Improvement Impact & Results

- SS Tool Wall
  - Reduces searching time by 5.7 hours per week saved

Unit 143 Organization

- Reduces searching time by 5.7 hours per week saved

Toy Organization

- 78.33 ft² of organized shelf storage space by purchasing new bins
- 60 ft² cleared for volunteer walking lane in the infant aisle
- 63 ft² of table top surface and 174.56 ft³ of under table bin storage
- Loft: 696.25 ft³ of accessible vertical space added

Product Output

- Monthly Product Aggregation
- Space Utilization
- Excess Movement
- Barcode System
- SS Tool Wall
- Andon Signals
- Automated Bin Assignment
- Updating Bundle Items

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Inventory Output

- Seasonality Distribution
- Monthly Product Aggregation

Excess Improvement Impact & Results

- SS Tool Wall
  - 16 ft² of wall space repurposed, 9 ft³ and 14 ft² of space saved
  - Barcode
    - Eliminates 2 out 10 steps in bin filling process
    - Allows inventory data to be accessed remotely
  - Andon Signals
    - Number of trips to external storage
    - Mistake proofing
  - Updated Bin Assignment
    - Saves 15-20 minutes per week
    - ~50,000 in 2 of aisle space per week utilized

Space Utilization Impact & Results

- Flyer
  - Saves $40-60 per week based on projected decrease in waste

Unit 143 Organization

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Process Improvement Implementations

- uglification
  - A set of all volunteer routes with map and label of all stops
  - Large orders are located and picked by order from the first batch

Andon Signals

- Eliminates a diaper shift
- Decreases process by 2 hrs

Updating Bundle Items

- Eliminates guessing
- Improves inventory throughput

Barcode System

- Unit bin code is scanned, not based on multiples
- Individual tabs are placed with larger organized tab multiples

Orders are selected based on demand

5S Tool Wall

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5.7 hours per week saved

24 trips to external storage per week eliminated

$3840 per year in opportunity costs

253 ft² & 964 ft³ of cleared or repurposed space

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