Problem: How can physical safety and workflow efficiency be improved while addressing weaknesses caused by disparate tracking systems?

Probabilistic Putaway and Sustainability

Initial State: Boxes placed onto shelves via employee intuition with no standardized process.

Solution: Developed a putaway model in Excel by forecasting the number of times each box would be referenced per department. Used Exponential Smoothing with a Trend to develop the model:

\[ F(t) = a F(t-1) + b T(t-1) \]

Where:
- \( F(t) \) is the forecasted number of references
- \( a \) and \( b \) are smoothing constants
- \( T(t) \) is the actual number of references in period \( t \)

Forecasted Average References per Box, 2020-2022

<table>
<thead>
<tr>
<th>Department</th>
<th>Reference per Box</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>10</td>
</tr>
<tr>
<td>Finance</td>
<td>15</td>
</tr>
<tr>
<td>Human</td>
<td>20</td>
</tr>
<tr>
<td>Resources</td>
<td>25</td>
</tr>
<tr>
<td>Police</td>
<td>30</td>
</tr>
<tr>
<td>Records</td>
<td>35</td>
</tr>
</tbody>
</table>

References are expected to increase dramatically in the next three years for several top departments, most notably the District Courts.

Sustainable Putaway Model

- Sorted departments into three priority levels by highest average forecasted references per box
- Allocated spaces with 15% capacity buffer in priority levels 1 and 2
- Accommodates annual updates

Forecasted References per Priority Level (2019)

- Priority 1: 27%
- Priority 2: 57%
- Priority 3: 16%

Forecasted References per Priority Level (2020-2025)

- Priority 1: 57%
- Priority 2: 22%
- Priority 3: 21%

Box References by Priority

EV Implementation Phases

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Establish Environment Complete</td>
</tr>
<tr>
<td>02</td>
<td>Backend IT Setup Complete</td>
</tr>
<tr>
<td>03</td>
<td>Ticketing Portal Setup In Progress</td>
</tr>
<tr>
<td>04</td>
<td>Asset Management Setup Queued</td>
</tr>
</tbody>
</table>

Legacy Database

- Design Manual
- Requirements List

Electronic Video (EV)

- Videos showcasing the utility of the delivered probabilistic putaway model
- Click "Update Model"

EasyVista

What EasyVista is:

- Multi-function platform to manage inventory and ticketing
- Client Accountability
- On-the-fly reporting capabilities
- Item history tracking
- Communication between ticketing and inventory management platforms

EasyVista Requirements

- Meets OSHA requirements
- Overall Footprint: 30"W x 46"L
- Simple
- Intuitive
- Easy to use

Number of Clicks Analysis

<table>
<thead>
<tr>
<th>Type of Accession</th>
<th># Clicks in RM1</th>
<th>Est. # Clicks in EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same details as the box before</td>
<td>20.92</td>
<td>7</td>
</tr>
<tr>
<td>Similar details, but not the same</td>
<td>49.45</td>
<td>7</td>
</tr>
<tr>
<td>Completely different than the box before</td>
<td>90.38</td>
<td>7</td>
</tr>
</tbody>
</table>

COVID-19

- No sponsor meetings
- No new approach to deliverables
- Frequent, short staff meetings

EasyVista: Ballymore Order Picker

- Platform Height: 13" lowered / 71" max. raised
- 25"L x 17"W shelf
- Overall Footprint: 30"W x 46"L
- Easy roll 6" casters
- Meets OSHA requirements

Solution:

- Can be run at the click of a button
- Uses VBA and Solver
- Easy to use

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- Dr. Patty Buchanan, Deborah Fromm, Jill Kaatz
- Viggio Forde, Joanie Fadden, M.E. Kalsen, Lisa Hall, Helen Passey, Scott Williams, Carsten Mullins, Fred Hartmann, Donna Knox, Melodie McCann

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