Project Plan Presentation
Product Lifestyle Tracing System
The Capstone Experience
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Project Sponsor Overview

- Previously Herman Miller
- Made-to-Order Customisable Home Furnishing and Goods
- Headquartered in Zeeland, MI
Project Functional Specifications

• Search by products or by components and find the relationships between them
• Check what components can be discontinued if a certain product is discontinued
• Allow insight into how utilized certain component are to make improvements to lead times
Project Design Specifications

• The system features a Parts to Product Dashboard where users can select a product to trigger a detailed pop-up window
• Display includes a product reference card and data model presenting additional product information
• The system identifies components affected by product discontinuation through a dynamic pop-up table
• The system provides a detailed view of product-part connections, highlighting discontinued and low-supply components
# Part to Products

![Dashboard Screenshot](image-url)

## Part to Products Table

<table>
<thead>
<tr>
<th>Product Sub Category</th>
<th>Product Line</th>
<th>Description</th>
<th>Base Product Number</th>
<th>Final Order Date</th>
<th>Final Ship Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>Mandarin Pads</td>
<td>Mandarin Pads</td>
<td>A/F</td>
<td>5/24/2024</td>
<td>8/24/2024</td>
</tr>
<tr>
<td>Storage</td>
<td>Mandarin Towers</td>
<td>Mandarin Towers</td>
<td>A/F</td>
<td>5/24/2024</td>
<td>8/24/2024</td>
</tr>
<tr>
<td>Storage</td>
<td>Mandarin Seat</td>
<td>Mandarin Seat</td>
<td>A/F</td>
<td>5/24/2024</td>
<td>8/24/2024</td>
</tr>
<tr>
<td>Seating</td>
<td>Bevel (RY)</td>
<td>Bevel (RY)</td>
<td>JH Chino</td>
<td>4/17/2024</td>
<td>6/17/2024</td>
</tr>
<tr>
<td>Upholstery</td>
<td>Bevel (AM)</td>
<td>Bevel (AM)</td>
<td>ALC0000</td>
<td>5/17/2024</td>
<td>7/17/2024</td>
</tr>
<tr>
<td>Upholstery</td>
<td>Bolster (AM)</td>
<td>Bolster (AM)</td>
<td>AUC0000</td>
<td>5/17/2024</td>
<td>7/17/2024</td>
</tr>
<tr>
<td>Upholstery</td>
<td>CuddleForm (Cuddle)</td>
<td>CuddleForm (Cuddle)</td>
<td>AUC0000</td>
<td>5/17/2024</td>
<td>7/17/2024</td>
</tr>
<tr>
<td>Seating and Dining</td>
<td>James Tables</td>
<td>James Tables</td>
<td>ET301B</td>
<td>6/20/2024</td>
<td>8/20/2024</td>
</tr>
<tr>
<td>Occasional</td>
<td>Polygon Tables (PL)</td>
<td>Polygon Tables (PL)</td>
<td>PL9999</td>
<td>8/13/2024</td>
<td>10/13/2024</td>
</tr>
<tr>
<td>Seating</td>
<td>HB</td>
<td>HB</td>
<td>HB Frame</td>
<td>5/18/2024</td>
<td>7/18/2024</td>
</tr>
<tr>
<td>Seating</td>
<td>HB</td>
<td>HB</td>
<td>HB Frame</td>
<td>5/18/2024</td>
<td>7/18/2024</td>
</tr>
<tr>
<td>Seating</td>
<td>Bevel (RY)</td>
<td>Bevel (RY)</td>
<td>4W22 cycle 2</td>
<td>6/24/2024</td>
<td>8/24/2024</td>
</tr>
</tbody>
</table>
Product to Parts

![Image of Product to Parts dashboard](image-url)
Product Reference & Data Model
Discontinued Product
Project Technical Specifications

• The Product Life Cycle Tracing System will use several different technologies to deliver a feature-rich, seamless experience to the end-user.
• Data moves through a series of pre-processing steps before it is deemed ready for use by the application.
• A backend API will be accessed by the client application to consume data
• Version control and containerization of the backend will streamline development workflows
Project System Architecture
Project System Components

• **Data Pre-Processing Pipeline**
  - **Baan** – Database management system used for tracking supply chain + manufacturing data
  - **Infor LN** – Enterprise Resource Planning (ERP) database used to store customer contract data
  - **Alteryx** – Data analysis/processing tool used to refine and aggregate the information from Baan and LN
  - **Snowflake** – Database management system used for storing the processed information in a structured schema
• **Development Tools**
  - Next.js – Framework enabling server-side rendering on top of React to maximize browser performance
  - Express.js – Framework that allows for rapid testing and deployment of a backend API to serve data

• **Dev-Ops**
  - Docker – Used to containerize backend application and help facilitate cross-platform development
  - GitLab – Version Control system used as a code repository and CI/CD pipeline
Project Risks

**Complexity of Data**
- Complex and unlabeled data in databases ranging from legacy to modern systems
- Limit data to Herman Miller contract sales in North America + Consult data scientist

**Missing Data in Existing Data Sources**
- Queried data in the database has missing information
- Access raw data and parse it ourselves

**Scalability regarding millions of products**
- Mapping parts to products that utilize them can generate tons of results
- Start with smaller dataset + Implement a cache layer that periodically cleans the data into a format that can be queried faster

**Visualizing Data**
- Users should easily be able to interpret large quantity of relevant information
- Researching trending dashboard designs, then revising design with the sponsor
Questions?