Conlon, Jo and Narayanaswamy, Srilakshmi

A vision for the future using Product Lifecycle Management (PLM) as a platform for operational excellence and business transformation

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Product Lifecycle Management (PLM) as a Platform for Business Change
Leveraging technology to meet industry challenges
Introductions and Agenda

Jo Conlon FHEA, MCMI, C.Text.ATI
- Textile Technology graduate with 18 years experience in the clothing industry
- Technical and Sourcing Manager
- Joined UoH 2009, Fellow of the Higher Education Academy, a member of the Chartered Management Institute and an Associate of the Textile Industry

Lakshmi Narayanaswamy – Lead Consultant
- An Engineering graduate (Textile technology) with 12 years of Experience. Played various roles in Apparel Industry including sourcing & vendor management
- Key PLM Engagements : George-Asda (U.K), Lacoste(France), LCWaikiki(Turkey)
Future professionals as change-agents

A transformational mind-set is required for strategic organizational efforts like PLM that are more complex than just a technology implementation

People, product and processes
What is product lifecycle management (PLM)?

PLM 1.0
Operational Excellence

PLM 2.0
Digital Industry

PLM 1.0 Driving Operational Excellence

- Improve quality
- Improve productivity
- Reduce TTM
- Reduce admin overhead
- Reduce rework and scrap
- Improve customer satisfaction
- Business process improvement
- Enhance collaboration with supply chain
Enablement
A strong PLM core is an enabling platform for change

Differentiation
Emerging technologies and Solutions can provide data and improve decision making

Transformation
PLM operates at cutting edge of information and technology, to transform enterprise’s business model
What’s being done today?

**INNOVATION IN MATERIALS**
Fly knit - produces 60% less waste than traditional cut-and-sew methods. Since 2012, the technology has reduced nearly 3.5M pounds of waste.

**RECYCLE**
Used Tee shirts to new jeans
Plastic Bottles to Performance Products

**RE WEAR & REUSE**
Second hand clothes
Turn into Other Products, like industrial rag, insulation, running tracks etc.

**RENEWABLE ENERGY**
Move towards using renewable energy sources

**REPAIR**
Empowering customers by making quality products that can be repaired and encouraging the same.
Sustainable Apparel coalition

Generates standardized performance scores

Measure Environmental and Social impacts on Sustainability

Online self-assessment tool for Apparel and Footwear Industry

Gives an overview of the sustainability performance of a product and a company

All trademarks are the registered property of the respective companies and are acknowledged.
Higg index

- Allow Brands to benchmark their performance and discover where they stand compared to other Brands.
- Can share score with other SAC members, which can lead to sharing best practices and new partnerships.

- Benchmarking by facility type allows facility managers to compare their performance against their peers.
- Can identify areas for improvement and outline the current best practices in the field.

- Helps to measure environmental impact of the product at different stages of Product Life Cycle.
- Engage designers and developers in making sustainable choices at the very earliest stage of prototype design.
Environmental Impacts at every stage product lifecycle

PRODUCT LIFECYCLE

Fiber Production | Garment Manufacturing | Packaging | Customer Use

Fabric Production and Processing | Garment Processing | Distribution | End of Life

- Energy Used and Green Houses Gas Emissions
  - ✓ Fiber Production
  - ✓ Garment Manufacturing
  - ✓ Packaging
  - ✓ Customer Use
  - ✓ Garment Processing
  - ✓ Distribution
  - ✓ End of Life

- Water Used
  - ✓ Fiber Production
  - ✓ Garment Manufacturing
  - ✓ Packaging
  - ✓ Customer Use
  - ✓ Garment Processing
  - ✓ Distribution
  - ✓ End of Life

- Chemicals Used
  - ✓ Fiber Production
  - ✓ Garment Manufacturing
  - ✓ Packaging
  - ✓ Customer Use
  - ✓ Garment Processing
  - ✓ Distribution
  - ✓ End of Life

- Waste Generation
  - ✓ Fiber Production
  - ✓ Garment Manufacturing
  - ✓ Packaging
  - ✓ Customer Use
  - ✓ Garment Processing
  - ✓ Distribution
  - ✓ End of Life

Lets set one common standard which can be used globally
MSI (Material Sustainability Index) Framework

Creating a common baseline for material performance for Manufacturers & retailers

Data on thousands of Material types

MSI contributor tool – allows manufacturers and retailers submit data back to Higg MSI

Achieve the environmental and social transparency that consumers are starting to demand

MSI Framework

Qualitative Scoring (50 points)
- Recycled content
- Fiber Certifications
- Green Chemistry Verifications
- Coating Finishes

Quantitative Scoring (50 points)
- Chemistry
- Energy
- Water
- Waste

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### Solution Approach

#### Product Sustainability

<table>
<thead>
<tr>
<th>Define</th>
<th>Create</th>
<th>Pull</th>
<th>Compare</th>
<th>View</th>
<th>Analyze</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define the Target Sustainability Scores for each category during Planning Stage</td>
<td>Create the Product and enter the details for ‘Sustainability Sections ‘ in the Product</td>
<td>Pull the Fabrics and Trims on Product BOM and get the Material Section Score</td>
<td>Compare the ‘Target Vs Actual’ Product Sustainability Score</td>
<td>Check Line Sheet to view the ‘Product Sustainability Status’ in a single view</td>
<td>Review and Analyze the Products</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section-1 Score</th>
<th>Section-II Score</th>
<th>Section-III Score</th>
<th>Section-IV Score</th>
<th>Section-V Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material Section Score</td>
<td>Manufacturing Section Score</td>
<td>Packaging Section Score</td>
<td>Product Use Section Score</td>
<td>End of Use Section Score</td>
</tr>
</tbody>
</table>

Final Product Score
## Screenshots – Fabrics & Bill of Materials

### Material Fabric:

<table>
<thead>
<tr>
<th>Material Composition</th>
<th>Material Percent</th>
<th>Standard Material Name</th>
<th>Standard Material Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>50</td>
<td>Cotton Fabric, Knit</td>
<td>26</td>
</tr>
<tr>
<td>Linen</td>
<td>50</td>
<td>Linen Fabric</td>
<td>22</td>
</tr>
</tbody>
</table>

### Material Sustainability Details:

<table>
<thead>
<tr>
<th>Material</th>
<th>Fabric Content Score</th>
<th>Coating and Laminate Applied</th>
<th>Dyeing Method</th>
<th>Reduced Chemical Impact</th>
<th>Material Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>41</td>
<td>No</td>
<td>Not Dyed</td>
<td>Yes</td>
<td>64</td>
</tr>
</tbody>
</table>

### Bill of Materials:

#### Fabrics

<table>
<thead>
<tr>
<th>Placement</th>
<th>Mark Up</th>
<th>Material</th>
<th>Supplier</th>
<th>Material Status</th>
<th>Color</th>
<th>Size</th>
<th>Finish</th>
<th>BOM UOM</th>
<th>Price</th>
<th>Price OVR</th>
<th>Loss %</th>
<th>Consumption</th>
<th>Total</th>
<th>Weights %</th>
<th>Material Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Main Fabric</td>
<td>A &amp; E CONNOLK LTD.</td>
<td>In Development</td>
<td>Athelene Green</td>
<td>26, 28, 30, 32, 34</td>
<td>Enzyme</td>
<td>sqyd</td>
<td>$1.90</td>
<td>$0.00</td>
<td>0.00</td>
<td>1.50</td>
<td>$2.85</td>
<td>80</td>
<td>64</td>
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<tr>
<td></td>
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</tbody>
</table>

#### Trims

<table>
<thead>
<tr>
<th>Placement</th>
<th>Mark Up</th>
<th>Material</th>
<th>Supplier</th>
<th>Material Status</th>
<th>Color</th>
<th>Size</th>
<th>Finish</th>
<th>BOM UOM</th>
<th>Price</th>
<th>Price OVR</th>
<th>Loss %</th>
<th>Consumption</th>
<th>Total</th>
<th>Weights %</th>
<th>Material Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Waist Band</td>
<td>A &amp; E CONNOLK LTD.</td>
<td>In Development</td>
<td>African Violet</td>
<td>12L Metal</td>
<td>each</td>
<td></td>
<td>$0.08</td>
<td>$0.00</td>
<td>0.00</td>
<td>4.00</td>
<td>$0.32</td>
<td>15</td>
<td>65</td>
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</tbody>
</table>

#### Labels

<table>
<thead>
<tr>
<th>Placement</th>
<th>Mark Up</th>
<th>Material</th>
<th>Supplier</th>
<th>Material Status</th>
<th>Color</th>
<th>Size</th>
<th>Finish</th>
<th>BOM UOM</th>
<th>Price</th>
<th>Price OVR</th>
<th>Loss %</th>
<th>Consumption</th>
<th>Total</th>
<th>Weights %</th>
<th>Material Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Waist</td>
<td>BARCODES WEST</td>
<td>Active</td>
<td>Red</td>
<td>1&quot;2 Normal</td>
<td>each</td>
<td></td>
<td>$0.05</td>
<td>$0.00</td>
<td>0.00</td>
<td>1.00</td>
<td>$0.05</td>
<td>1</td>
<td>46</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

#### Packaging

<table>
<thead>
<tr>
<th>Placement</th>
<th>Mark Up</th>
<th>Material</th>
<th>Supplier</th>
<th>Material Status</th>
<th>Color</th>
<th>Size</th>
<th>Finish</th>
<th>BOM UOM</th>
<th>Price</th>
<th>Price OVR</th>
<th>Loss %</th>
<th>Consumption</th>
<th>Total</th>
<th>Weights %</th>
<th>Material Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>New 10636 Boxes Carton</td>
<td>AMERICAN S&amp;FIRD</td>
<td>In Development</td>
<td>Red</td>
<td>60*40 Normal</td>
<td>each</td>
<td></td>
<td>$0.65</td>
<td>$0.00</td>
<td>0.00</td>
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<td>59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New 10838 Poly bag Individual poly bag</td>
<td>BARCODES WEST</td>
<td>In Development</td>
<td>Red</td>
<td>5&quot;8 Normal</td>
<td>each</td>
<td></td>
<td>$0.04</td>
<td>$0.00</td>
<td>0.00</td>
<td>1.00</td>
<td>$0.04</td>
<td>2</td>
<td>44</td>
</tr>
</tbody>
</table>
## Impact / Benefits

### PLM

<table>
<thead>
<tr>
<th>Stream-lined Processes</th>
<th>Speed-to-Market</th>
<th>Well Defined Roles &amp; Responsibilities</th>
<th>Enhance Adoption Rate</th>
<th>Re-usability</th>
<th>Single-Version of Truth</th>
</tr>
</thead>
</table>

### SUSTAINABILITY SOLUTION

- **Plan Collection with Sustainability Target**
  - Set a direction for the designers to plan collection accordingly
  - Can export the data in excel/pdf format

- **Generate Reports**
  - Generate a consolidated report for each Season
  - Can identify areas for improvement
  - Can track how much % of Sustainability Target has been achieved

- **Dashboards**
  - Can get a Snapshot of Sustainability score for each Product in a Season

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