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Circular economy (CE) pillars are:
- Less resource and material consumption;
- Less waste and emissions;
- Decoupling resource use from value creation

Aims and Scope

A quick assessment method to connect the “circularity” of a product chain with its environmental sustainability level

Methods

- Correlate the circularity level of a pallet Supply Chain (SC) with its environmental impact
- Derived from Streamlined Life Cycle Analysis
- Based on a multiple matrix approach
- Adopts severity ranking evaluation scales to estimate CE level and environmental performance

Step 1 and 2

Matrix 1 relates CE pillars to SC phases

Target to be achieved

<table>
<thead>
<tr>
<th>Pre-manufacturing</th>
<th>Manufacturing</th>
<th>Product delivery</th>
<th>Customer use</th>
<th>End of Life (EOL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing input and use of natural resources</td>
<td>Are you adopting recycled materials?</td>
<td>Are you using renewable and recyclable resources?</td>
<td>Are you dismantling pallets?</td>
<td>Are you adopting energy recovery for EOL?</td>
</tr>
<tr>
<td>Reducing emission levels</td>
<td>Are you adopting renewable energy sources in transport?</td>
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<td></td>
<td></td>
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<tr>
<td>Reducing valuable materials losses</td>
<td>Are you using any maintenance policy on pallets?</td>
<td>Are you using energy recovery for EOL?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing share of renewable and recyclable resources</td>
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<tr>
<td>Increasing the value durability of products</td>
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</tbody>
</table>

Matrix 2 relates environmental impact to SC Phases

A relationship is defined between CE and environmental sustainability

Test case results

Case A:
- inexpensive pallets
- No reverse logistics
- No Recycling at EOL

Case B:
- robust pallets
- production wastes re-used
- repair activities
- EOL recycling

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