e-DEA as a Practical EcoDesign Tool

Andreas Ciroth, Michael Srocka, Guillaume Jouanne
GreenDeltaTC / Berlin, evea / Nantes
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Outline

1. Ecodesign (-problems)
2. E-DEA as a new webtool for EcoDesign, differences
3. The implementation for BIC
4. Conclusions, and discussion
1. EcoDesign
EcoDesign, 1

- Most of the environmental impacts of a product are determined in the design stage
  - Choice of material: Product weight, durability, required maintenance, ...
  - Recycling options
  - Use patterns
    → DfE, DfX, ...
EcoDesign, 2

- Simple assessment rules and methods may be misleading
  - Recycled material with higher environmental impact
  - Wood in railways, underfloor construction: much higher impacts than similar construction from Aluminum (Kunst, Ciroth, Gerner 2001)
  - ...

(in the end, main reason for the development of the LCA method!)
EcoDesign, 3

• Product designers are not (and should not necessarily become) LCA experts
• Design process very different from LCA modelling
  – Need for quick decisions and quick results
  – ‘playful’ (ideally)
  – Visual

→ Does not fit to existing LCA software, but software is required to allow more sophisticated modelling.
2. E-DEA for EcoDesign
e-DEA

• Idea 1: Use “full power LCA”
  – full LCA software (modelling and calculation)
  – Large databases (generic, company-specific, up-to-date)

• Idea 2: Prepare and guide
  – “chunks” of LCA models, modelled by LCA expert, following consistent methods, provided in LCA software
  – Default LCA methods provided in LCA software (LCIA, allocation, categories, …)

• Idea 3: Connect “Appealing” web-tool to the LCA software and database, and allows flexible modelling
e-DEA, Structure
e-DEA, Structure 2
e-DEA, Access to one central server over LAN or WAN
3. Implementation for BIC
e-DEA implementation for BIC

• Collaboration
  – evea (France): LCA modelling, data, local training
  – GreenDeltaTC (Germany): Implementation, training

• Implemented summer-autumn 2009, go live Dec. 2009, since then in use

• BIC: French multinational pen, razor, lighter company, www.bicworld.com

Design offices worldwide
e-DEA: a Rich Internet Application
Database and user management
Design models
Reporting

- **GreenDeltaTc**

- **Shavers (Shavers, Category Administrator)**

**LCA Result**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Results</th>
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</thead>
<tbody>
<tr>
<td>Ecosystem Quality [Pt]</td>
<td>0.003160933</td>
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<tr>
<td>Human Health [Pt]</td>
<td>0.077425068</td>
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<tr>
<td>Resources [Pt]</td>
<td>1.1567108709</td>
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</tbody>
</table>

**Indicator Results (Weighting)**

- Ecosystem Quality [Pt]
- Human Health [Pt]
- Resources [Pt]

Contributions by SimaPro data types
### Add Product

<table>
<thead>
<tr>
<th>Product</th>
<th>-none-</th>
</tr>
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<tbody>
<tr>
<td>Transport Scenario</td>
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<tr>
<td>Amount</td>
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### Add Commercial Reference

#### Products and Commercial References

<table>
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<tr>
<th>Product / Commercial Reference</th>
<th>Amount</th>
<th>Unit</th>
<th>Transport</th>
<th>Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr Shaver, ABS</td>
<td>1,0</td>
<td>p</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co Shaver handle (ABS)</td>
<td>1,0</td>
<td>p</td>
<td></td>
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</tr>
<tr>
<td>Abs</td>
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<td>g</td>
<td></td>
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<tr>
<td>As Shaver head</td>
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<td></td>
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<tr>
<td>Co Blade</td>
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<td>cm2</td>
<td></td>
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<tr>
<td>Steel</td>
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<td>mm2</td>
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</table>
4. Conclusions, and discussion
Conclusions

• e-DEA is an EcoDesign tool that combines “full-power” LCA software and data with an intuitive web tool that is tailored for non-LCA experts

• The web tool interacts with SimaPro, triggering LCA calculations; one central database is accessible worldwide, enabling company-wide cooperation

• A first implementation was tailored for BIC, and is in use since end of 2009

• Key to success at BIC was careful attention to needs of design departments, and adaptation of e-DEA (nomenclature, LCA structure, data, user interface options)
Thank you.

Dr. Andreas Ciroth
GreenDeltaTC GmbH Berlin
ciroth@greendeltatc.com

www.greendeltatc.com