
GaBi 4 Product Portfolio

- Fulfilling requirements of industry -

Julia Pflieger

University of Stuttgart, IKP - Department Life Cycle Engineering
www.ikp-gabi.uni-stuttgart.de / www.gabi-software.com

LCA in Industry: Challenges and Approaches to Make it more Practical
Session: A toolbox for “quick and sound” LCA

27th LCA Discussion Forum, Zürich, November 17th, 2005



LCA in industry

General requirements on tools for LCA application

Practitioners in industry:

- ▶ Environmental experts
- ▶ Product / process designer
- ▶ Marketing / Communication

... and therefore different levels of application:

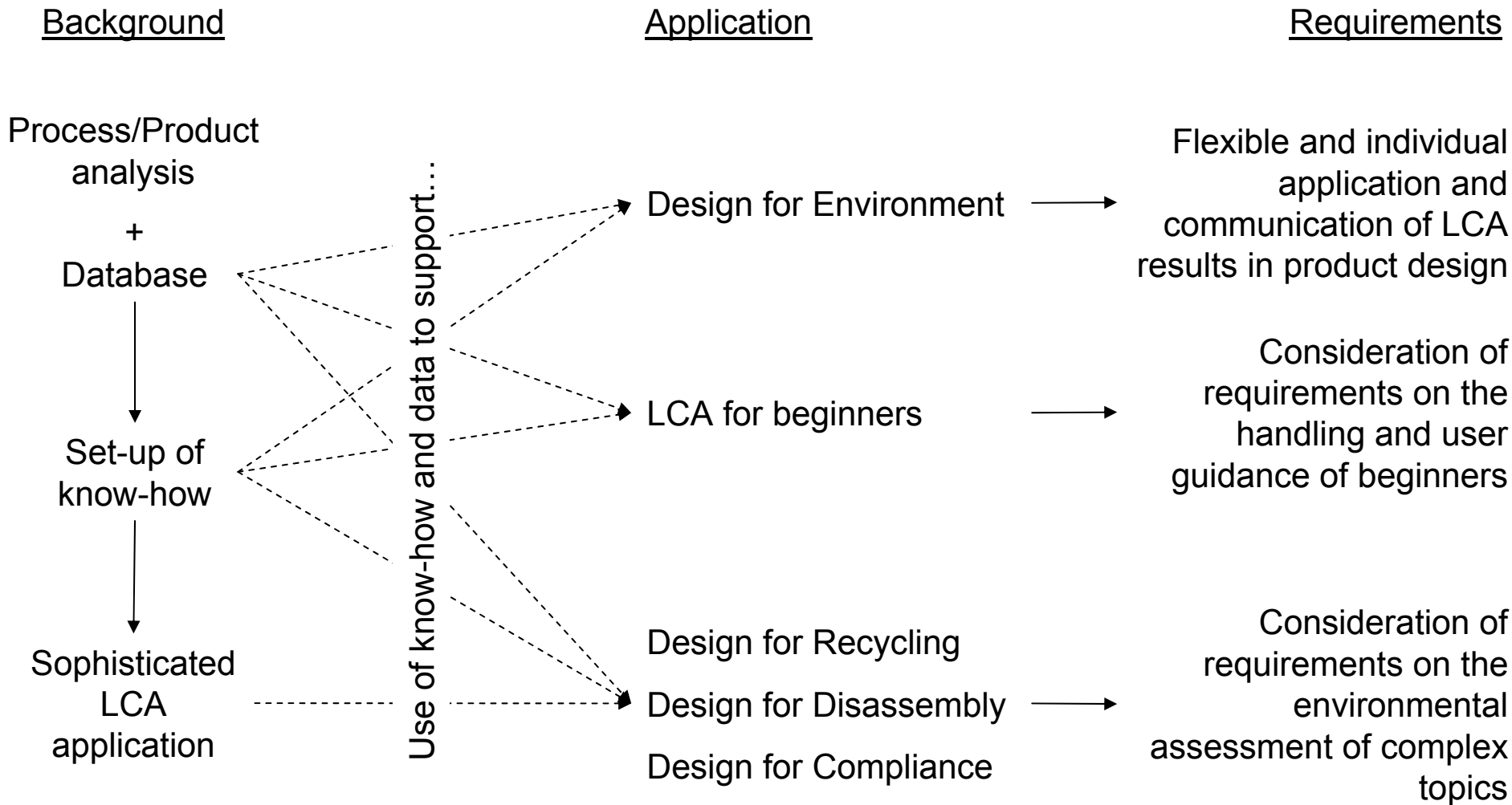
- ▶ Difference in resource and time availability for conducting an LCA or integrating LCA into product development
- ▶ Difference in knowledge and experience on LCA
- ▶ Difference in use of LCA results

⇒ Variety of different requirements on scope, functionality and complexity of LCA tools exists!



LCA in industry

Overview on tools for LCA application



Requirements from industry:

Flexible and individual application and (internal) communication of LCA results in product design

Dissemination of LCA results:

- ▶ Giving non – LCA software users access to LCA results
- ▶ Quick, easy and transparent communication of project results
- ▶ Possibility for the product designer to create own scenarios by parameter variation
- ▶ Nearly no LCA software knowledge needed to use and interpret the LCA results

Reporting on LCA results:

- ▶ Creation of interactive (= parameterised) reports
- ▶ Faster balance analysis by defining and applying report templates
- ▶ Adaptation of reports on the basis of scenario analysis and parameter variation
- ▶ No LCA software knowledge needed to understand and interactively change the LCA system



Design for Environment

GaBi 4 – interactive report, publisher and reader

GaBi 4 i-report

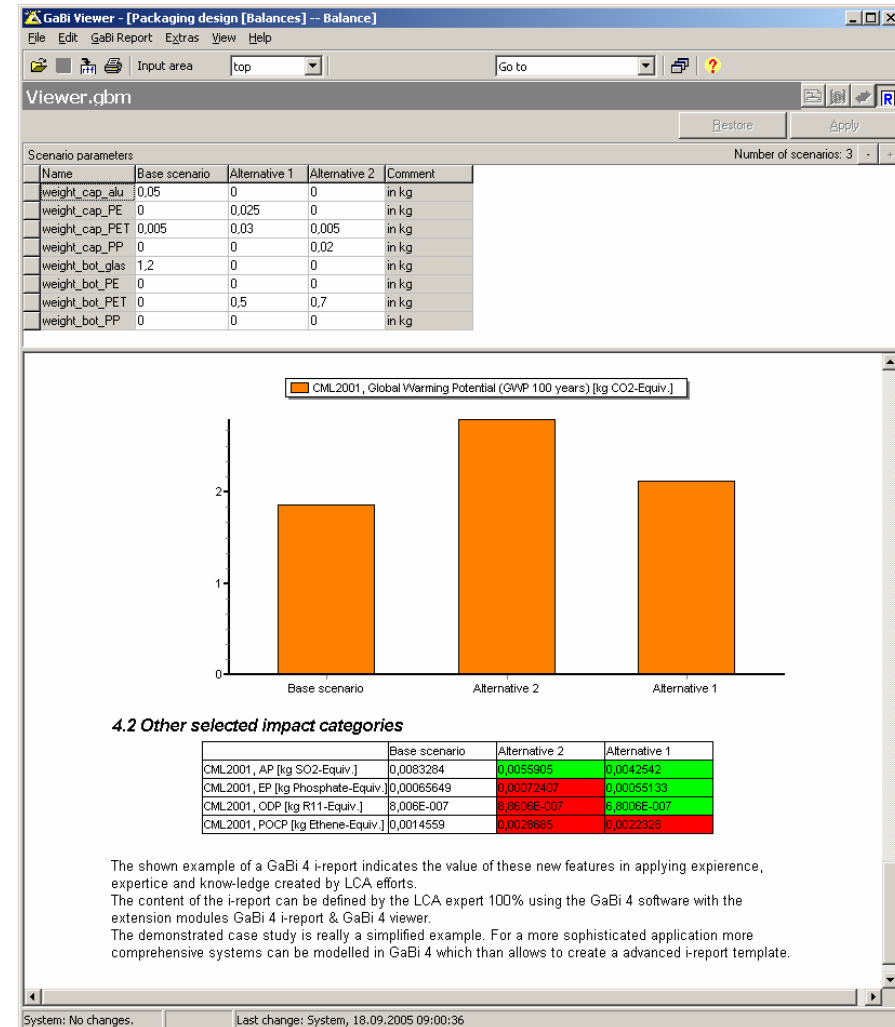
- ▶ Set-up of parameterised product-specific LCA models
- ▶ Creation of interactive reports based on parameterised models
- ▶ Flexible parameter variation allows online adaptation of interactive reports
- ▶ Definition of report templates, Export of reports to .rtf (MS Word)

GaBi 4 publisher

- ▶ Disseminate GaBi 4 model files and GaBi 4 i-reports to clients using GaBi 4 reader

GaBi 4 reader

- ▶ View and application of interactive reports and GaBi 4 models
- ▶ Change parameters in exported modules for scenario simulation, product selection etc.



Requirements from industry:

Consideration of requirements on the handling and user guidance of beginners

- ▶ Easy to use LCA software tool
- ▶ Support of resource and time efficient LCA studies
- ▶ User guidance on application and modelling of a product's life cycle
- ▶ Simple modelling and analysis of products and processes without loss in data quality
- ▶ No need for comprehensive expert knowledge in complex LCA modelling
- ▶ User guidance on analysis and presentation of results
- ▶ Compatible and upgradeable to expert LCA software



LCA for beginners

GaBi lite



Housing

Name: Housing Weight[kg]: 2,4

☐ Remaining weight

☐ Grouping

Name	Type	Transportation process	End of life
Aluminium Druckguß [tr]	Production process	Truck/3.5t total cap./2t payload (100)	
Aluminium ingot mix	Material	Truck/3.5t total cap./2t payload (500)	No end-of-life

Assistant

Step 1: Definition of name and weight of a part

Step 2: Selection of a material from the element tree

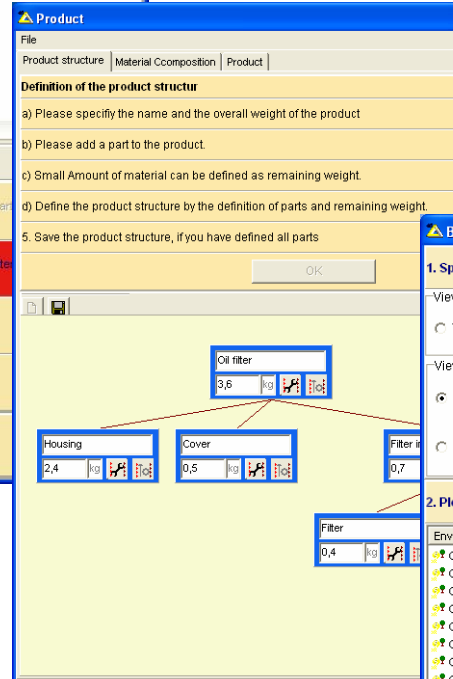
Step 3: Selection of production process from the element tree

Step 4: Select transportation process for the defined material

Step 5: Select transportation for the produced part

Step 6: Selection of a EoL treatment for your material

Back Continue



Use phase

Use phase Oil filter

1. Select the use phase model

Type of use phase: Automobile

2. Define automobile class and type of fuel

Vehicle category (by fuel reduction value): Compact class

Type of fuel: Gas

Parameters of the use phase (defined by selected automobile class)

Parameter	Value
Overall weight of the product [kg]	3,6
Running distance [km]	150000
Fuel reduction factor [l/100kg*100km]	0,134
CO2 [kg CO2/kg Fuel]	3,175
CO [g/kg]	0,326
NOx [g/kg]	0,886

Balance

1. Specify the level of detail to display the results

View: ☐ Total life cycle ☒ Life cycle phases ☐ Detailed view

View production phase: ☒ Total production ☐ Detailed view

View end-of-life: ☐ Total use ☒ Detailed view

View use phase: ☐ ????? ☒ Detailed view

2. Please specify the categories for the impact assessment

Environmental quantity (selection):

- CML96, Global warming potential (GWP ...)
- CML96, Global warming potential (GWP ...)
- CML96, Acidification potential (AP)
- CML96, Eutrophication potential (EP)
- CML96, Photochemical oxidant potential ...
- CML2001, Abiotic Depletion (ADP)
- CML96, Aquatic ecotoxicity potential (A...
- CML96, Terrestrial ecotoxicity potential (...)

Selected quantity:

- CML96, Global warming potential (GWP ...)
- CML96, Ozone depletion potential (ODP, ...)

3. Please select normalisation and evaluation key

Normalisation: CML96, Germany

Evaluation key: CML96, Policy short term, IKP

Cancel Calculate balance results

- LCA and DfE software for beginners
- Easy to handle – the GaBi lite assistant guides you step by step to your balance results

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IKP
Universität Stuttgart
Institut für Kunststoffprüfung
und Kunststoffkunde

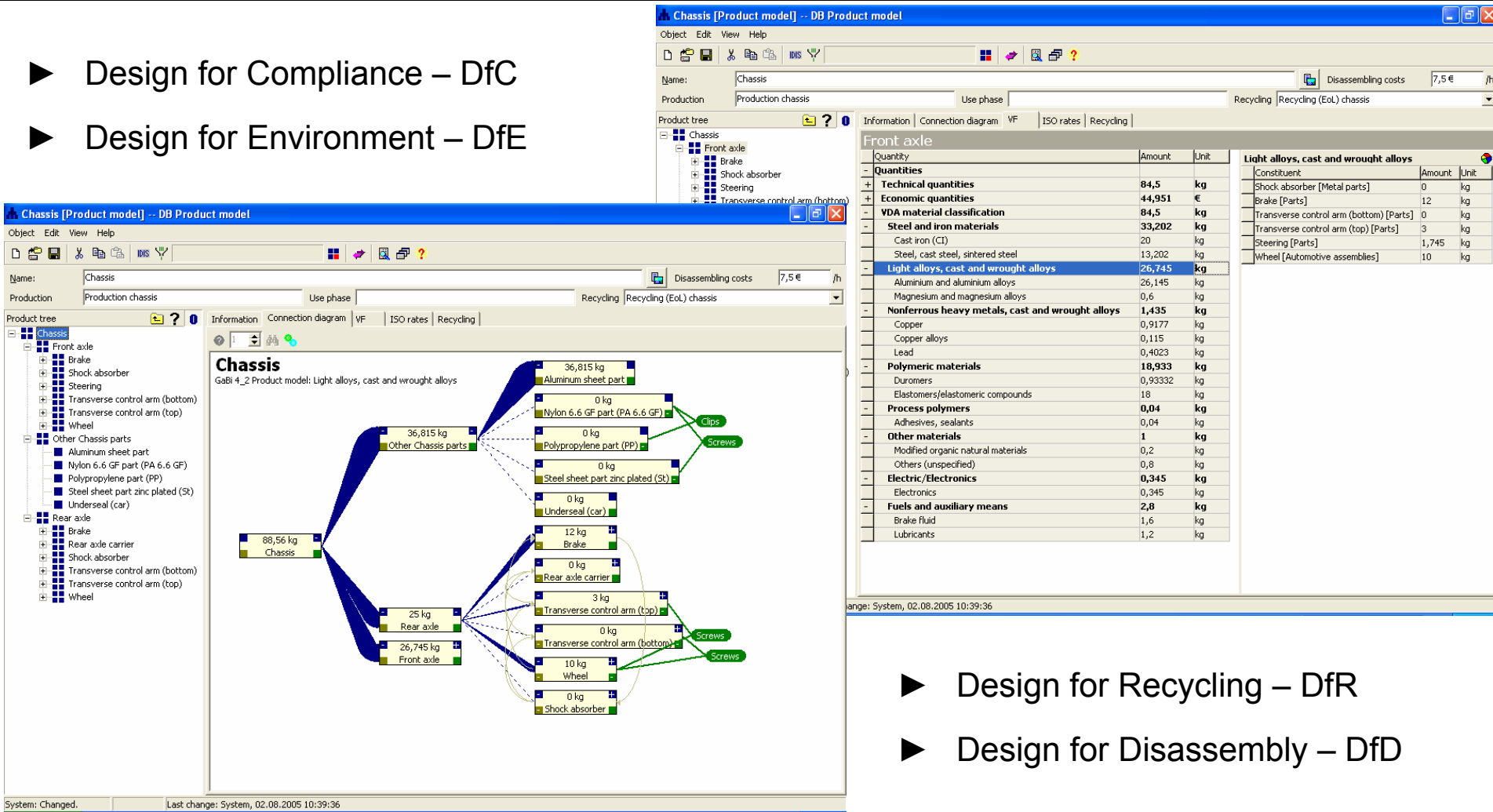
GaBi

Requirements from industry:

Consideration of requirements on the environmental assessment of complex topics and products, e.g. automobiles, information and communication technologies

- ▶ Integration into existing internal design and documentation tools
- ▶ Support in compliance with directives and laws, e.g. identification of recycling quotas, tracing of hazardous substances, ...
- ▶ Definition of the products life cycle e.g. modelling of product structure, identification of material composition, scenario analysis for End-of-Life, ...
- ▶ Support of recycling orientated product design e.g. description and classification of materials, description of the recoverability processes, calculation of road vehicles' recyclability and recoverability (ISO 22628), ...
- ▶ Analysis of disassembly processes based on LCA model e.g. modelling of joining techniques, description of the sequence of disassembly, definition of disassembly precedence, ...

- Design for Compliance – DfC
- Design for Environment – DfE



- Design for Recycling – DfR
- Design for Disassembly – DfD