



Is ,nano‘ environmentally preferable?

**Smaller structures in semiconductors may
lead to higher energy consumption**

Materials are tailored to specific application.

What is the effect on recycling?

Fuel cells enable clean transportation

**What about environmental burdens and
risks of material supply?**

LCA can give answers



LCA
puts the development of products,
materials and their processing in the
context of the megatrend of the 21st
Century: Sustainability

InLCA 2006:

**LCA in Decision Making –
the public sector/private sector interface**

**LCA as part of LCM
in daily application within corporations**

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LCA in decision making – the private sector

Outline

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- ▶ **Life Cycle Assessment: Tool for implementing IPP**
- ▶ **3 profiles of LCA teams in leading large companies**
- ▶ **Discussion**

Life Cycle Assessment: Tool for implementing IPP

Acceptance and application of LCA by industry

Guiding questions:

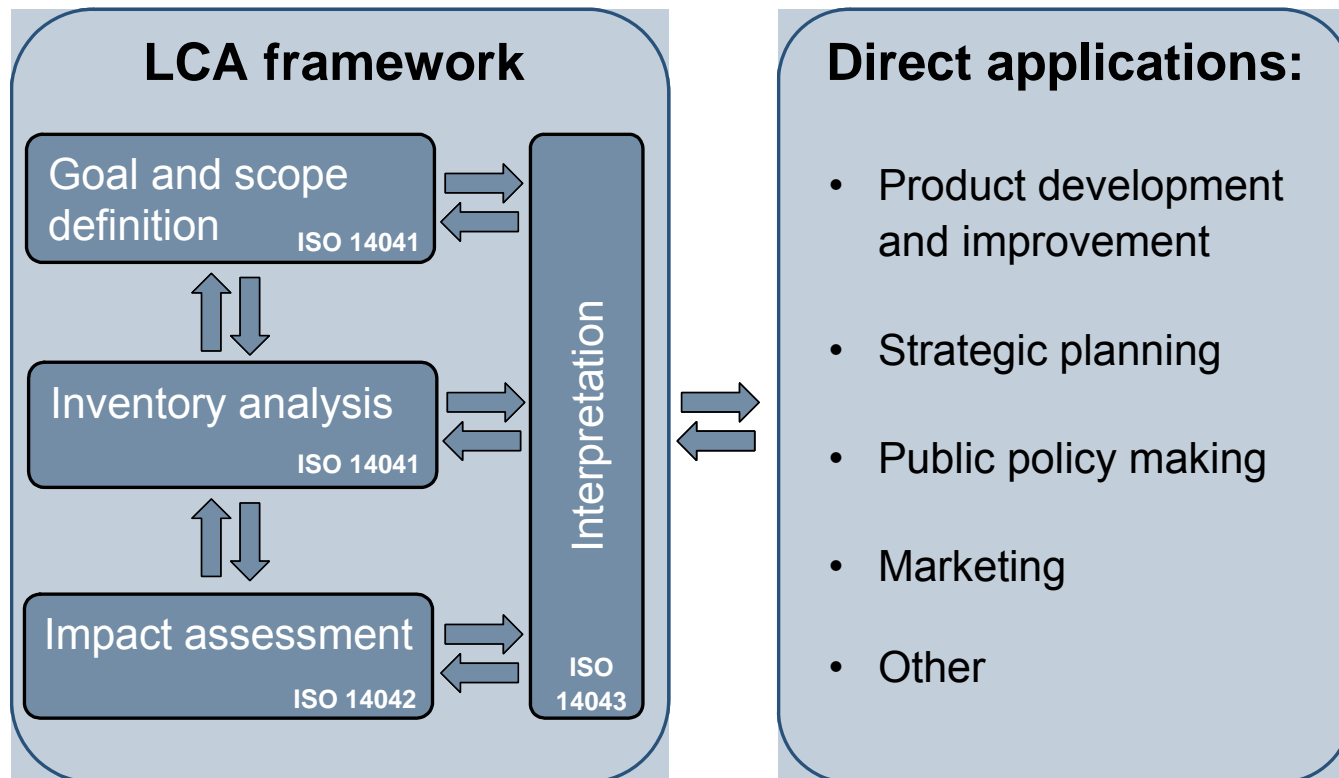
- ▶ **What is the perception of LCA amongst multinational practitioners?**
- ▶ **What goes wrong in some areas?**
- ▶ **What are the ‘real’ drivers and benefits?**
- ▶ **What are the success factors of the ‘champions’?**
- ▶ **What would they need from outside?**
- ▶ **(How) does that fit to the deliverables of e.g. public projects?**

Life Cycle Assessment: Tool for implementing IPP

The method of choice

- “LCAs provide the best framework for assessing the potential environmental impacts of products currently available. They are therefore an important support tool for IPP.”

Source: Communication from the Commission to the council and the European Parliament, Integrated Product Policy, Building on Environmental Life-Cycle Thinking, Brussels, 18.6.2003



Life Cycle Assessment: Tool for implementing IPP

The restraints

- ▶ **Anxiety regarding the complexity**
- ▶ **‘Fear’ of discovering the current status compared to the competition**
- ▶ **Lack of financial resources**
- ▶ **Lack of personnel resources**
- ▶ **Uncertainty as to what needs doing in particular**
- ▶ **Lack of expertise as to how the implementation can be carried out**

Life Cycle Assessment: Tool for implementing IPP

Myths and truths

- ▶ **Myths: Life cycle analyses are ‘complicated’**
 - there are many stakeholders involved
 - LCAs are data intensive and time-consuming
 - their realisation is complex and expensive
 - the analysis is not simple due to multi-criteria decisions
- ▶ **Truth: Life cycle analyses are ‘feasible’**
 - LCAs are accepted, integrated, powerful and efficient
 - simple and not so time-consuming, depending on the problem in hand
 - principally extensive and systematic
- ▶ **Critical success factors:**
 - the right question and objective, capacity and tools...

Life Cycle Assessment: Tools for implementing IPP

Critical success factors – how to start

- ▶ A structured approach with a balanced ‘Goal and Scope’ definition.
- ▶ Access to up-to-date and ready-to-use ‘background data’ (such as materials, transports and energies); usually from databases.
- ▶ An ergonomic software.
- ▶ The help of a consultant for pilot projects, who would give advice on the potentials and expectations.
- ▶ A decision as to whether the LCA should be assigned, or carried out alone.
- ▶ If assigned: at least one person in the organisation who is familiar with the matter or who can be made familiar with it.
- ▶ Real commitment of the management.

Life Cycle Assessment: Tool for implementing IPP

The drivers and benefits

- ▶ Improved products.
- ▶ Clearer identification of materials used.
- ▶ Identification of ecologically, technically or economically relevant processes in the life cycle of products that can be directed to optimisation potentials.
- ▶ Transparent presentation of product performance for policy/decision-makers.
- ▶ Support in development decisions through the comparison of alternatives for materials and processes (scenario-building, DfE...).
- ▶ Fulfilling external specifications (from customers, laws, ...).
- ▶ Equipped for policies like CO₂ trading, ELV directive, EuP, EPD etc. which could lead to trade barriers
- ▶ Added value due to cost savings, reduction of economic risks (!)
- ▶ Adoption of the results in marketing and sales, image improvement and thereby advantages over competitors.
- ▶ Training in life cycle thinking, improved communication along the value chain.

LCA in decision making – the private sector

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Profiles of LCA teams in leading large companies

Company profile: BASF AG

► Organisation:

- Large chemical company

► Profile of LCA team:

- Consists of 10 experts
- LCA practise since 1990, eco-efficiency since 1996
- Approx. 250 studies, ca 85 % for internal clients, 15 % for external clients

► Approach and success factors:

- Top level commitment
- Combination of LCA with LCC (Eco-efficiency) and social aspects (socio-economic efficiency)
- Communication tools to management
- Simple and impressive illustration of the results
- Scenario and sensitivity analysis
- Experience
- Short timeframe and low costs for the analysis

Profiles of LCA teams in leading large companies

Company profile: BASF AG

- ▶ Expectations to external actors (e.g. IPP, public databases):
 - Practicability, acceptance, trust
 - Data supply on technical and process data
 - No 'public' database needed, data for practitioners needed
 - Data exchange formats have minor importance, data themselves more important
 - Improve communication tools
 - Capacity building/education in centers with an clear business approach, not too scientific thinking
- ▶ Market development
 - Use of LCA for product promotion

Profiles of LCA teams in leading large companies

Company profile: Unilever

▶ Organisation:

- Large food and healthcare company
- Sustainability leader

▶ Profile of LCA team:

- Consists of 5 experts
- LCA practise since 1980,
- Several hundred studies
- Clients: Innovation project managers, CSR and communication specialists and regulatory affairs officers

▶ Approach and success factors:

- Comprehensive LCA (infrequently), mostly quick LCA, DfE is starting
- Good and skilled team
- Continuity and high level commitment
- Tools and data for effective project and sound communication of results

Profiles of LCA teams in leading large companies

Company profile: Unilever

- ▶ Expectations to external actors (e.g. IPP, public databases):
 - Little expectations, historically those initiatives had little direct impact on Unilever LCA practice. Ecoinvent was a nice surprise, and we would like to see unified databases, data formats, and quality assurance.
 - Access to data sources on energy/commodities/transport outside Europe
 - Data format: One important format is better than several 'perfect' ones
 - The aim of current tools development should be towards simplifying the communication of LCA results and connect them to specific customer needs (legislation compliance, consumer communication, innovation guidance, etc).
 - The classic presentation of LCA results has made LCA boring and unconnected with the current environmental issues landscape.
- ▶ Market development
 - Development of tools that allow for quick targeted environmental assessments, flexible enough to be useful in different contexts and business and legislative environments.

Profiles of LCA teams in leading large companies

Company profile: Volkswagen

► Organisation:

- Large car manufacturer

► Profile of LCA team:

- Consists of 4 experts
- LCA practise since 1990,
- 15 complete vehicle LCAs (6 of them published)
- about 200 LCA studies (most of them comparative studies of automotive parts, engines, production and EOL-processes etc...)
- Internal clients: R&D; strategic decision; marketing; external affairs
- Externally: Studies in large project consortiums (like e.g. EU funded projects). These studies are in full compliance to ISO 14040ff

► Approach and success factors:

- Full LCAs - based on the results of full LCA streamlining strategies were developed
- Comunication of the results is one of the most important feature in order to get the internal acceptance of your results. "Speak the language of the receiver" which means that no "one instrument fits all" solution is possible.

Profiles of LCA teams in leading large companies

Company profile: Volkswagen

- ▶ Expectations to external actors (e.g. IPP, public databases):
 - Life-Cycle Thinking will probably become more important.
 - But it is still unclear, whether the European environmental policy will really change to life-cycle thinking.
 - The crucial point is the following: If the EC would practice life-cycle thinking in environmental policy this means that a wide range of the still existing environmental policy should go to a revision process.

- ▶ Market development
 - The development, diffusion and acceptance of all these issues deeply depends on the question whether life-cycle thinking happens only on the paper of the EC and on conferences or
life-cycle thinking is really entering the environmental policy with all the consequences e.g. revision of the existing policy in order to eliminate trade-offs etc.

Profiles of LCA teams in leading large companies

Summary

- ▶ **Common success factors?**
- ▶ Feasibility, expertise, time and cost, communication, data/tools
- ▶ **Expectations towards public projects?**
- ▶ Low, if yes than data (pragmatic approach preferred)
- ▶ **Mentioned points regarding market development?**
- ▶ Diverse: product promotion, better tools, deregulation according to IPP

Are these 'champions' important?

Yes, they are:

- ▶ **Important 'grounding' of the academic scene regarding priorities, innovation etc.**
- ▶ **Triggering application orientated developments**
- ▶ **Capacity building**
- ▶ **Budget provision**
 - Data supply
 - Tool development
- ▶ **Communication skills to internal / external stakeholders**
- ▶ **...**

▶ **Thank you for your attention, and...**

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