

# Challenges, drivers and benefits of the use of life cycle methods in Finnish companies

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## Background

- Life cycle thinking (LCT), life cycle assessment (LCA) along with other life cycle (LC) methods are important tools
  - to **assess environmental impacts** of products and services
  - to support **environmental decision making** in companies
  - to help companies to **identify unsustainable strategic decisions**
  - to find out **business opportunities** by taking precautionary actions
- **But** in practice, many challenges hinder the use of LC methods to support companies' environmental management

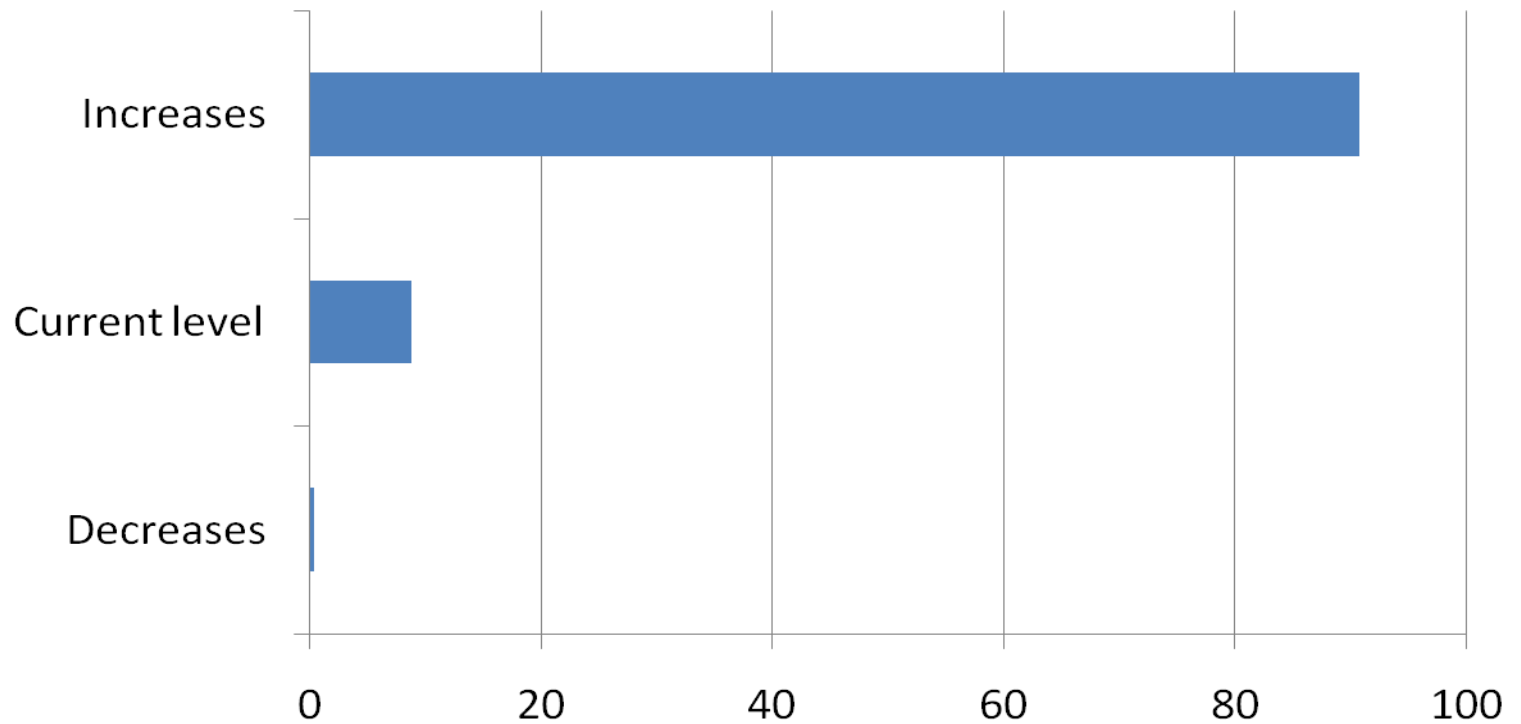


# The objective

1. Present the main drivers and barriers for companies to apply LCT, LCA and other LC methods in their decision making
2. Boost the **competitiveness** of Finnish companies
3. Offer a starting point for a **national roadmap** to implement the use of life cycle methods in Finnish companies

The focus is on Finnish companies, but the results can be applied widely to support decision making on environmental sustainability

## Demand for product oriented environmental management in future



Österlund, H. 2010

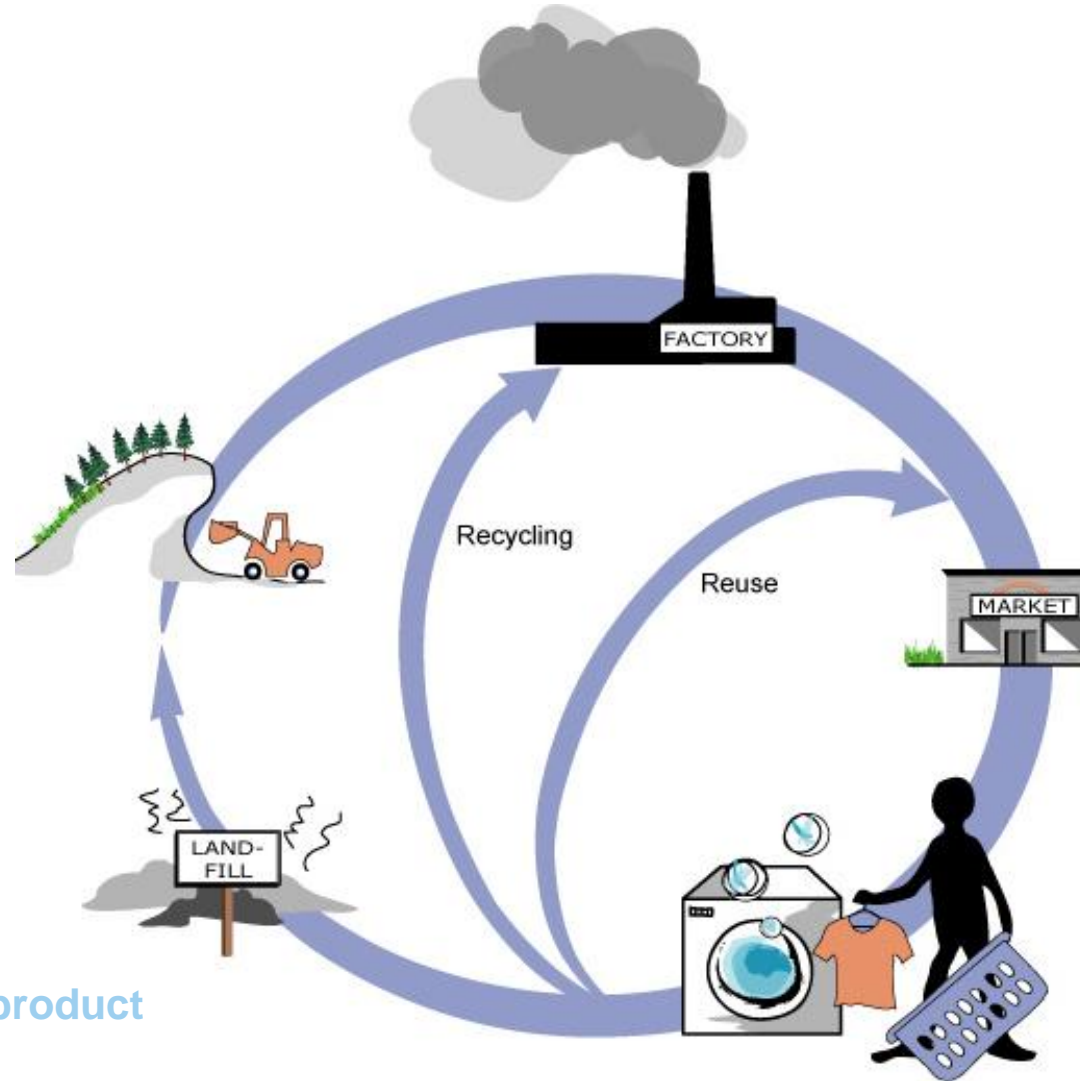
- **65%** of respondents can imagine a situation, in which product development process is discontinued due to negative environmental performance
- About **90%** of respondents pose demands on environmental properties to subcontractors
- About **90%** of respondents face demands on environmental properties from their customers

# Drivers for environmental management in companies

1. Legislation
2. Cost-efficiency
3. Customers' needs
4. Raw material prices
5. Company brand
6. Megatrends
7. Business opportunities
8. Environmental reporting

(source: interviews done within the FINLCA project)

# Why guidance and the framework is needed?

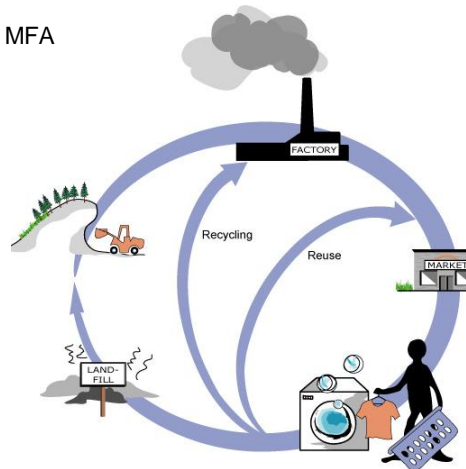


Life cycle of a product

# Why guidance is needed?

## Life cycle methods...

Life cycle thinking	Life cycle assessment, LCA
Streamlined LCA	Thermodynamical methods
Ecological footprint	Carbon footprint
Water footprint	Material flow analysis, MFA
EE-IO	Substance flow analysis, SFA





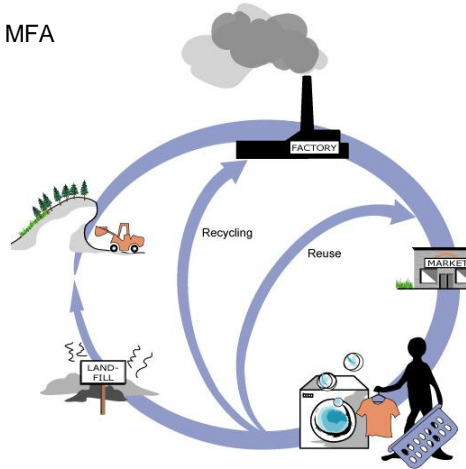
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## Methodological challenges...

Allocation	Impact categories
Uncertainties	System boundaries
ALCA	Missing data
CLCA	Tools
	Indicators
	Impact assessment



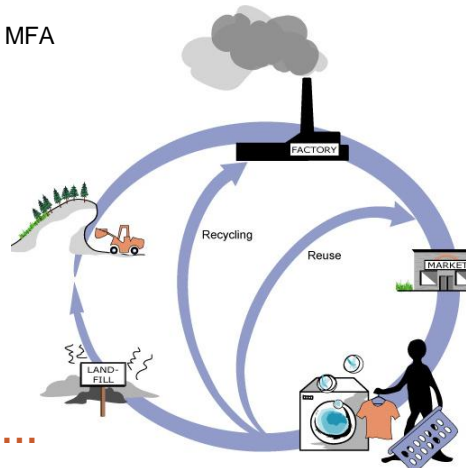
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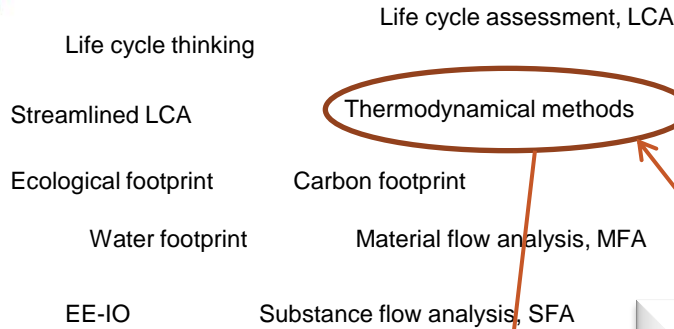


## Decision-making situations...

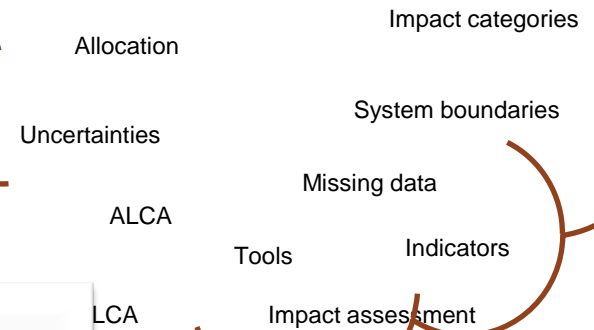
Product development	Bechmarking
Internal / external	Communication
Past trends	Future trends
Ecolabels	Strategic management
Operational management	

# Why the framework is needed?

## Life cycle methods...

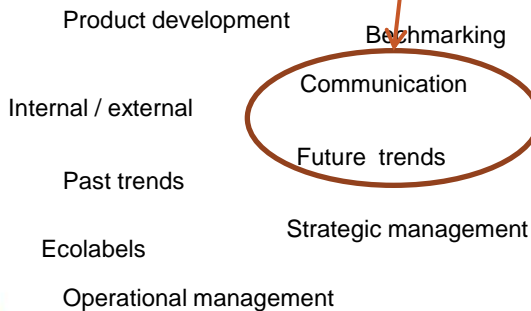


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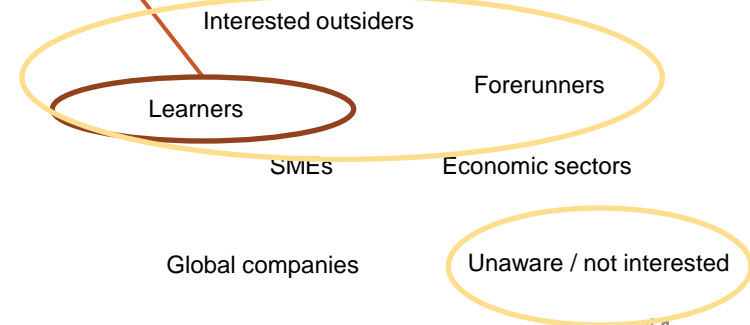


+ standards and guidance (ILCD...)

## Decision-making situations...



## Different types of companies...



## Some methodological considerations

- Challenges of **land use and use of natural resources**: still developing methodology, limited data availability, difficult to understand and communicate the results
- In LCIA of **hazardous substances** different models give differing prioritizations so care must be taken in model selection
- Life cycle aspects of **nanomaterials or –technologies** need to be evaluated on a case by case approach
- Dealing with **uncertainties** is necessary in decision-making
- Taking these aspects into account in decision making in full scale **need high expertise and resources** for data compiling, modeling and interpretation of results

## Examples of use in different decision making situations

- **New metal materials** – comparison of two different products for product development and also public communication
- **Bioproducts** – consumer choice between two products based on one environmental aspect
- **Construction industry** – sectoral assessment of life cycle thinking principles and crucial factors
- **Use of process industries' residues and recycled materials** – multi - sectoral assessment to improve life cycle environmental performance with industrial ecology perspective
- **Painting industry** - design of a tool for internal improving eco-design processes and understanding of environmental aspects

## Synthesis

- Even though LCT and LC methods are commonly used in the forerunner companies, a large part of the companies are **lacking knowledge and resources** to apply LCT and LC methods to environmental management
  - Special challenges in SMEs
- LCA is often too complicated and resource demanding process for companies and therefore **simplified practices need to be introduced.**
- **Integration** of LCT and LC methods into companies' other planning systems and aims
  - What LC methods can contribute?

## Next steps

- More **practical approaches** need to be used when spreading LCT in wide scale
- Next step with LCT and LC methods in decision making in practice will be a **pilot project**
  - on regional, value-chain or sector level
  - a networking process
  - including special type of training for SMEs
  - Linkages between LC methods and other planning tools or objectives of decision makers

## Preliminary action plan

- Could be linked to the project “Carbon Neutral Municipalities” (HINKU)
  - Certain municipalities in Finland act as forerunners by aiming to cut down their greenhouse gas emissions ahead of schedule (-80% by 2030)
- Benefits of integrating LC methods in “HINKU”-process:
  - Real life applications for LC methods
  - CO<sub>2</sub> –benefits for the environment and for the society
  - Improvements e.g. in material efficiency for the companies
- Implementation under work, but ...



**Companies**  
\*Climate-friendly technologies and services

**SYKE**  
\*Support, expertise, measurement, communications

**Other partners**



**COMMUNICATION OF BEST PRACTICES**

- within a network of actors
- to media and society



[www.environment.fi/hinku](http://www.environment.fi/hinku)

