Development of Environmental Performance Indicators for ICT Products on the example of Personal Computer

Newsletter No. 2

Dear Sir or Madam:

Within the scope of the upcoming EuP directive on energy using products, eco-design in product development plays a major role. Improving the environmental profile of a product is efficiently supported by applying product or product-group specific environmental performance indicators. Goal of the EPIC-ICT project (www.epic-ict.org), initiated by the European Commission, is to develop a method and the framework to define environmental performance indicators for ICT products (Information and Communication Technologies) on the example of personal computer.

In order to give you the opportunity to get informed about the project's current status, its objectives and the partners and upcoming events, we are pleased to send you the second EPIC-ICT Newsletter. Please do not hesitate to forward it to any person who might be interested in the project theme.

Thank you for your attention and please note that at February 7th, a special workshop will be held in Brussels which gives you the opportunity to be part of the discussion.

The EPIC-ICT Project

- **Objectives**
  The objective of this project is to develop a method for environmental performance indicators for ICT (information and communication technology) products on the example of a personal computer, based on a "life cycle thinking" approach. These indicators will be based on the assessment of environmental impacts caused by the product and relate to measurable and reliable technical and physical units.
  Further information (www.epic-ict.org)

- **Funding and duration**
  The project is funded by the European Commission under the Sixth Framework programme.
  Project duration: 18 months
  Project start: November 2004
  Further information

- **Project partners**
  In order to combine scientific soundness, practical applicability and public acceptance, the consortium consists of partners from industry, consultancy and research: IKP (University of Stuttgart), Motorola GmbH, Philips CFT, Dell Product Europe B.V. Ambiente Italia srl, and PE Europe GmbH.

IKP (University of Stuttgart), project manager, carries out the research on Life Cycle Analysis (LCA) and Life Cycle Engineering (LCE) in close cooperation with the industry partners. University of Stuttgart, IKP

Motorola's main tasks are in providing environmental assessment expertise on electronics and in ensuring feasibility and practicability from industry perspective. Motorola

Philips supplies major environmental assessment expertise on electronics, especially on supplied materials to the PC business and ensures applicability. Philips

Ambiente Italia is responsible for the environmental evaluation of the life cycle of considered ICT products. Ambiente Italia

Dell provides information on the design and assembly of personal computers from a technical perspective and on product development processes. Dell

PE Europe ensures feasibility and practicability and supports the project with LCA / LCE software and data and long-year eco-design experience. PE Europe GmbH

Participations / Workshops

- **EPIC-ICT Workshop No. 1**
  In March 2005 the first workshop took place at the CeBit, Hanover.
  Further information

- **Upcoming EPIC-ICT Workshop No. 2**
  The second workshop will take place on February 7, 2006 in Brussels. Register now, please contact the project coordinators.
  Download Workshop program

Contact – Project coordination

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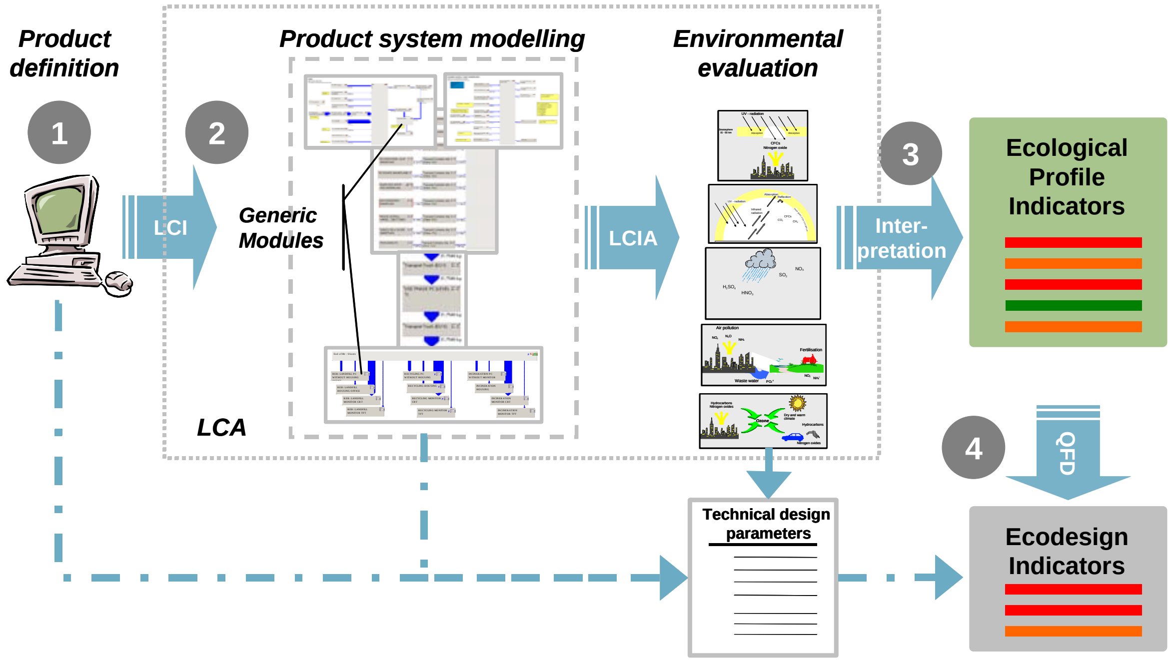
The EPIC-ICT Method

Key methodologies

- System modelling of ICT products with **Generic Modules approach**
- A full **Life Cycle Assessment** study of a personal computer
- Eco-design with adapted **QFD** (Quality Function Deployment)

The EPIC-ICT Method

The method provides easy to apply product or product group specific Environmental Performance Indicators to be used for eco-design, the "Ecological profile indicators" and "Ecodesign Indicators". These indicators are based on a detailed LCA of a respective product and consider the ranges of product specifications in order to clearly define the indicators' application sphere. The indicators are provided as a list of physical and measurable product parameters, which are significant from an environmental point of view. This ensures that the relevant environmental aspects throughout the life cycle are addressed. In case of the Ecodesign parameters, the operational constraints are taken into account. A stepwise environmental evaluation helps focusing on the significant product parts or life cycle issues.



Step 1) Product definition phase:

- Clearly defines the product under consideration by taking the customer demands and respective required functions into account
- Defines the product from the product designer's perspective and in the designer's "language"
- Results in product definition: Main assemblies of product to fulfil required functions / customer demands

Further information: Method description Step 1

Step 2) Life Cycle Assessment study in EPIC-ICT:

- Only one comprehensive full LCA study per product (group) is carried out, which needs to be updated regularly, e.g. every 3 years, depending on product (group) and product development cycles, has to include sensitivity analyses (ensures representativity of study)
- Sub-assemblies and components are modelled parameterized, flexible and with reliable and

consistent partial LCA models: "Generic Modules"

- Product specific environmental evaluation based on Life Cycle Impact Assessment categories and certain Life Cycle Inventory results (flexible and adaptable to method applicants)
- Results in detailed full scale LCA of regarded product: "Ecological product profile"

Further information: Method description Step 2

Step 3) Environmental interpretation

- Identifies in a stepwise procedure the environmentally relevant sub-assemblies and components of the product through a thorough contribution analyses
- Result in reliable, measurable, influenceable and scientific sound physical product specific indicators – **Ecological profile indicators**

Further information: Method description Step 3

Step 4) Eco-design parameters indication

- Combines information from product design (technical specifications and improvement design parameters) and environmental evaluation results with adapted QFD approach
- Results in **"Eco-design indicators"** which can directly be used for eco-design of products

Further information: Method description Step 4

Environmental aspects:

The ecological profile indicators are taking the following product relevant environmental aspects into account:

- environmental impact categories (such as Global Warming Potential, Acidification Potential, Eutrophication Potential etc.),
- energetic resource depletion indicators (primary energy),
- single elementary flows which are relevant from a toxicity assessment point of view (such as Arsenic, Mercury, Zinc, Hydrogen fluoride etc.) and water
- environmental relevant technical product specifics (such as energy consumption use phase).

Further information ('Environmental aspects')