Project no.
513673 (SSPI)

Project acronym
EPIC-ICT

Project title
Development of Environmental Performance Indicators for ICT Products on the example of Personal Computers

Instrument: STREP

Thematic Priority: 8.1.B.1.5, task 6

Deliverable 8
Report on Workshop #1

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Lead contractor for this deliverable: Motorola

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Dissemination Level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

EPIC-ICT WORKSHOP No. 1

15 March 2005

Convention Center, CeBIT, Hannover

Start	10:00 p.m. CET
End	13:45 p.m. CET

Content

1 Introduction

Within the scope of the European Commission’s proposal for a framework directive for setting eco-design requirements for energy-using products (EuP), mechanisms for rapid, efficient and participatory decision-making are required. One mechanism to address decision-makers in product design as well as in politics are environmental performance indicators. Against this background, the project consortium of EPIC-ICT (Development of Environmental Performance Indicators for ICT products on the example of Personal Computer) is developing a method to define environmental performance indicators for ICT products. These indicators will relate to easy to define technical product properties. Based on Life Cycle Assessment (LCA), relevant environmental indicators are defined to support and enhance eco-design requirements for the respective decision-makers.

In order to include external stakeholders’ views and concerns, a workshop was organized. The workshop was held in Hannover, Germany, at the world’s largest ICT exhibition CeBIT. Objective was to inform about the EPIC-ICT project, to provide a platform for discussion and to integrate experience and address concerns of participating and interested stakeholders in the development of the method.

Goal of the workshop was:

- inform about future EU legislation on information- and communication technology products (ICT)
- present the goal and the expected impacts of the project
- introduce the scientific method to define the environmental performance indicators
- provide and present stakeholders’ participation
- present / discuss status of the project
- get feedback from stakeholders on the project
- present further proceeding
- provide a discussion platform

1.1. Workshop program

The workshop was divided into three sections (see also Appendix 1). First, an introduction of the planned EuP-directive and a brief overview of the EPIC-ICT project was given (Topic 1). Secondly, the measurement of environmental performance of ICT products were highlighted from both the methodological and an industry representative’s point of view (Topic 2). Within the third round the development of a methodology for scientifically based and industry applicable indicators for ICT products was proposed (Topic 3).

After each round the participants were encouraged to discuss the respective topics. A final platform discussion gave the opportunity to take all concerns and views of the participants into account.

1.2. List of participants

Participant	Organization
Roberto Castelli	ALCATEL
Silke Hermanns	AMD
Mario Tobias	BITKOM
Sam Cross	CEN
Martin Charter	Centre for Sustainable Design
Claire Schonbach	Dell
Michael Oley	Deutsche Telekom
Peter Chen	Foshan Huaxin Imp Exp Co. Ltd.
Andreas Middendorf	Fraunhofer Institute for Reliability and Microintegration IZM
Susana Haas	Globalprog
Zeina el-Hajj	Greenpeace
Anna Braune	IKP, University of Stuttgart
Niels Warburg	IKP, University of Stuttgart
Markus Stutz	Motorola
Constantin Herrmann	PE Europe GmbH
Hans van der Wel	Philips Applied Technologies
Mark Goedkoop	PRé Consultants B.V.
Sharon Heymann	SHARP Electronics (Europe) GmbH
Friedrich Koch	Siemens AG
Rene Kemna	VHK
Jürgen Wörhoff	Vodafone D2 GmbH

2. Topic 1: EuP directive and introduction to the ICT project

2.1. Introduction to the new EuP directive from an industry perspective

Speaker: Hans van der Wel (Philips Applied Technologies)

Mr van der Wel first presented the general goals, possible consequences and benefits of EuP. Then, he gave an overview of the development of the directive and highlighted pros and cons from an industry perspective. Next subject was how Ecodesign contributes to a better environmental performance and what Philips does in Ecodesign. Philips' approach to Ecodesign includes an Ecodesign matrix, Environmental Assessments, benchmarking with other products and LCA with the Ecoscan software already in use by Philips designers for the application of Ecodesign. Mr van der Wel also presented lessons learned from their approaches.

Finally he pointed out Philips' main motivations to join the EPIC-ICT consortium:

- EPIC-ICT results in a (simple) assessment and benchmark tool for developers and competence teams
- EPIC-ICT method includes the whole life cycle
- Good supplement to already detected focal areas at Philips and useful for prioritising
- Indicators might support and simplify data exchange between stakeholders

Concluding points in his presentation were

- EuP is valuable for Ecodesign
- Tools are available to make it happen
- Philips Electronics experience shows that Ecodesign can be done
- Better environmental performance is only partly due to Ecodesign: EuP must keep the balance between environmental and economical, technical, functional, etc. elements

(see also file "EPIC-ICT Workshop1 Philips.pdf")

2.2. Supporting ecodesign requirements for EuP: EPIC-ICT

Speaker: Markus Stutz (Motorola Physical Realization Research Center – Europe)

After emphasizing the belief that the EuP directive will come and seeing the benefits for Motorola, Mr Stutz presented the general goal of EPIC-ICT:

Defining a method for environmental performance indicators for ICT products which relate to easily defined technical product properties based on environmental impacts. Key method for the environmental indication will be Life Cycle Assessment.

The general path of the proposed method towards these indicators was shown next as well as the work plan for the consortium and its organisation. Mr Stutz then underlined the benefits from EPIC-ICT:

- Gain practical experience for implementation of the future EuP directives
- Develop indicators, which can be used for EuP and IPP

- Opportunity for easy benchmark and comparison to be used in development and in marketing & sales
- Support scientific reference for standard concerning the simple assessment of environmental impacts of electronic products throughout their life cycle

Finally, an overview over other related EuP projects was given: MEEuP, Ecodesign TV, IPP Pilot Project (including results).

(see also file *"EPIC-ICT Workshop1 Motorola.pdf")*

3. Topic 2: Measuring the environmental performance of ICT-products

3.1. Life Cycle Assessment (LCA): Methodology and basis for the development of environmental indicators

Speaker: Niels Warburg (IKP, University of Stuttgart)

Mr Warburg started his presentation with a brief introduction to Life Cycle Assessment (LCA), explained the general procedure and important steps when carrying out an LCA study. He underlined specialties for the environmental assessment of electronics. On the example of a printed wiring board (PWB) Mr Warburg showed how the entire physical life cycle has to be considered. The modular approach for LCA of electronics which was developed at IKP was presented next.

Work package 1 of the EPIC-ICT project includes an LCA of a simplified PC model. Based on findings of this preliminary study, further work on the final detailed life cycle model can better be identified. Mr Warburg presented the scope and the extent of the simplified life cycle model of a PC and some findings. These include findings on the physical life cycle inventory level as well as some results from an impact assessment which considers certain chosen environmental relevant fields. The emphasis was put on the use of LCA results for the indication of the environmental performance of a PC. These findings were further compared to findings of other LCA studies of PCs and showed that the simplified model is within a reasonable range concerning several chosen LCI and LCIA results (primary energy demand, Global warming potential, Photochemical ozone depletion potential, Acidification potential). Summarizing, the LCA of a simplified PC model detected data lacks, the potential relevance of different life cycle phases and most relevant environmental impact categories.

Mr Warburg concluded his presentation by underlining the use of LCA results for the development of environmental performance indicators:

- Identification of main environmental drivers
- Generation of "Generic Modules" for eco-design / DfE
- Definition of requirements for data and models

(see also file "EPIC-ICT Workshop1 IKP AMBIT.pdf")

3.2. Dell DfE Overview

Speaker: Claire Schonbach (Dell Environmental Affairs)

Ms Schonbach started her presentation by informing about Dell’s environmental activities, considering the product’s life cycle. On the product concept and design phase, Dell concentrates on Design for Environment concerning energy consumption, restricted materials, material minimization and noise. Ms Schonbach presented Dell’s chemicals management strategy: Current banned or restricted materials in Dell’s products, RoHS compliance strategy, implementation of supplier declaration. For material minimization, Dell reduces plastics in their products and initiates media reduction. Achieved energy consumption reductions for the last years were presented for two chosen PCs.

Dell’s public and tactical goals include ensure RoHS compliance prior to July 2006, recycling: 50 % increase in collection over last year and increase of desktop PCs with Energy Star enabled as default configuration, etc.

(see also *file “EPIC-ICT Workshop1 Dell.pdf”)*

4. Topic 3: Environmental Performance Indicators

4.1. Providing a transparent method for environmental indication of ICT products (status of current development)

Speaker: Constantin Herrmann (PE Europe GmbH)

First Mr Herrmann presented the general requirements for the indicators from the Description of Work of the EPIC-ICT. The development of the indicators will consider:

- All relevant life cycle phases and environmental impacts (life cycle thinking)
- Contributing to reduction of environmental impacts as foreseen in IPP and therefore promoting the sustainability of these products
- Establishing a practical basis for a future directive on EuP
- The viewpoints of manufacturers and regulators

Goal of the project is to provide

- A practical and industry applicable method for environmental indication of ICT products on behalf of technical key properties
- Policy support (e.g. contributing to Kyoto protocol or 6th Environment Action Program)
- Simplification of indication without loosing broad aspects of environmental matters
- Objectification of environmental indicators by transparent and systematic generation of indicators
- Promotion and dissemination of the method

Other suitable studies that also deal with environmental indicators of PCs were identified and these indicators examined with regards to the goal of the project.

Mr Herrmann presented the proposed procedure for the development of the environmental performance indicators. Part of the methodology is Quality Function Deployment (QFD). He explained the general procedure and proposed an adaptation for the EPIC-ICT method. This adaptation foresees a multiple application of the QFD method in order to integrate the customer demands, the technical functions and components of the product into the life cycle characteristics, basis of the life cycle model of the considered product. The life cycle model contains Generic Modules for flexible modelling.

The indicators will be based on different levels of life cycle information, resulting from a Life Cycle Assessment. Information can e.g. be taken from the Life Cycle Inventory (LCI) that contains all “physical flows” of the system (e.g. amount of energy, mass of certain substances etc.). The indicators can also be based on results from the Life Cycle Impact Assessment (LCIA) where the LCI data is examined from an environmental point of view by different impact assessment methods (e.g. Global Warming Potential) or other methods (e.g. Toxicity Indices). On an example, Mr Herrmann presented what an environmental performance indicator might show: “How is environmental importance of power supply unit in comparison to all other issues of the ICT product, i.e. total mass, ICs, PWBs, materials, recycling grade / recyclability, use patterns etc.”. Results will be for product designer easy to define and quantifiable indicators based on technical parameters (e.g. size of PWB etc.).

(see also *file “EPIC-ICT Workshop1 PE Europe.pdf”)*

5. Discussion rounds 1 – 3

1) EuP directive and introduction to the EPIC-ICT project

2) Measuring the environmental performance of ICT products

3) Concluding platform discussion and outlook

In the discussion rounds the participating stakeholders vividly debated. Topics in the three discussion rounds included the following questions and remarks *(followed by the consortium’s positions)*:

How will the use and end-of-life phase be handled in the life cycle model?

> *Both of these phases will be examined by scenario analyses in order to be able to assess the significance of effects of certain criteria/aspects/variations/use or EoL patterns within these phases. Findings from these analyses will be contained in the resulting environmental indicators.*

Does the information base for the life cycle model take the supply chain into account?

> *Since the life cycle perspective is the basis for the life cycle model, the information on the supply chain is part of the data base. The data availability*

and its methodological integration in the EPIC-ICT method in this project is ensured by its combination of know how and knowledge of the partners.

Does the method take technology shift into account? What are the drivers for such shifts?

Technology shifts will be addressed with the method. The information base will be easy to adapt to new trends and therefore ensures to take shifts into account.

Does the method take the needs and constraints of SMEs into account (simple tools and training needed)?

The simplicity of the indicators ensures that these needs are addressed. Main objective of the project is a scientific based conversion of sophistic scientific environmental impact categories into practical and easy to assess technical parameters which then can also be applied by SMEs. The findings of the product's environmental performance are assigned to the product designers' demands.

Does the consortium have a consensus on the environmental indication (indicators?)?

The consortium agreed upon to take appropriate environmental impacts into account - in addition to other environmentally relevant aspects commonly used LCA impact categories. A consensus exists. Also the list of chosen impacts is not restricted, which means new impacts (or aspects or impact categories) can be regarded in the future

Is there a dynamic factor in the method to adapt changes of the product under examination?

The method provides that changes of the product properties are addressed. In the adapted QFD method, designers' know-how on these changes is integrated (technical developments, technical dependences). Therefore, not the whole life cycle study (= information basis for the indicators) has to be repeated. An update of this information basis has only to be done respectively to new and overall relevant changes and to ensure the indicators to be kept up-to-date. This fact for example also allows the integration of technology shifts (see question above)

Even though LCA is considered as the key methodology for mechanisms related to the planned EuP directive, is the consortium aware of a certain gap between LCA as basis and the environmental indicators used?

The methodology will cover other concerns as well, which are not included per se in LCA, e.g. toxicity, noise, power consumption.

Will there be a standard set for indicator development? How might the indicators be used in standards?

> *The development of standard is not a focus of the project. We assume that the methodology can be used from standardisation organisations to create a standard on their own. Respective contacts to relevant persons within different standardisation actions do exist and are fostered with relevance to EPIC-ICT.*

The participants had an intensive discussion on WEEE and RoHS. Question was what companies are executing in practice to implement WEEE and RoHS. This also included the question if and which decisions on materials will be driven by WEEE / RoHS. Outcome of this discussion was that decisions on materials depend on a variety of factors. No general accordance was found to predict the influence of WEEE / RoHS.

Another outcome was that further discussions on EuP should adequately include stakeholders' viewpoints. This is underlined by the appearance of a high variety of stakeholders at this workshop: Industry associations, producers, standardisation organisation, NGOs etc. (see list of participants).

Generally, the discussion round showed that the participants mainly agree with the proposed procedure to develop a methodology for environmental indicators for EuP.

6. Appendix

Appendix 1: Invitation and program

EPIC-ICT Workshop

15 March 2005

Environmental Performance Indicators – Eco-design requirements for PCs and other ICT products against the background of the planned EuP directive

Environmental performance indicators can be used as mechanism for the proposed European directive "On establishing a framework for the setting of Eco-design requirements for Energy-Using Products" (EuP). The first workshop of the EPIC-ICT project (www.epic-ict.org) will present the expected impacts, first steps for a scientific definition of the method and involve you as a stakeholder. Share your opinion and get informed about future EU legislation affecting information and communication technology (ICT) products.

- Topic 1: EuP directive and introduction to the EPIC-ICT project
- Topic 2: Measuring the environmental performance of ICT products
- Topic 3: Environmental Performance Indicators
- Stakeholder discussion

Program

10.00 – 10.05 Uhr	**Welcome** Niels Warburg, Anna Braune (University of Stuttgart, IKP, EPIC-ICT Project coordinators)
10.05 – 10.30 Uhr	**Introduction to the new EuP directive from an industry perspective** Hans van der Wel (Philips Applied Technologies)
10.30 – 10.50 Uhr	**EPIC-ICT: How to support eco-design requirements for EuP** Markus Stutz (Motorola Physical Realization Research Center - Europe)
10.50 – 11.10 Uhr	**Discussion on Topic 1: EuP directive and introduction to the EPIC-ICT project**
11.10 – 11.35 Uhr	**Life Cycle Assessment (LCA): Methodology and basis for the development of environmental indicators** Niels Warburg, Anna Braune (University of Stuttgart, IKP), Emanuela Menichetti (Ambiente Italia)
11.35 – 12.00 Uhr	**DfE from an integrator's perspective** Claire Schonbach (Dell, Environmental Affairs)
12.00 – 12.20 Uhr	**Discussion on Topic 2: Measuring the environmental performance of ICT products**
12.35 – 13.00 Uhr	**Providing a transparent method for environmental indication of ICT products (status of current development)** Constantin Herrmann (PE Europe)
13.00 – 13.45 Uhr	Concluding platform discussion and outlook