



**PE AMERICAS**  
*A joint venture of Five Winds and PE*



# Modeling the Life Cycle Impacts of Electronics

InLCA IX - October 2009  
Boston, MA



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## 1. Introduction

## 2. The Challenges

## 3. The Solutions

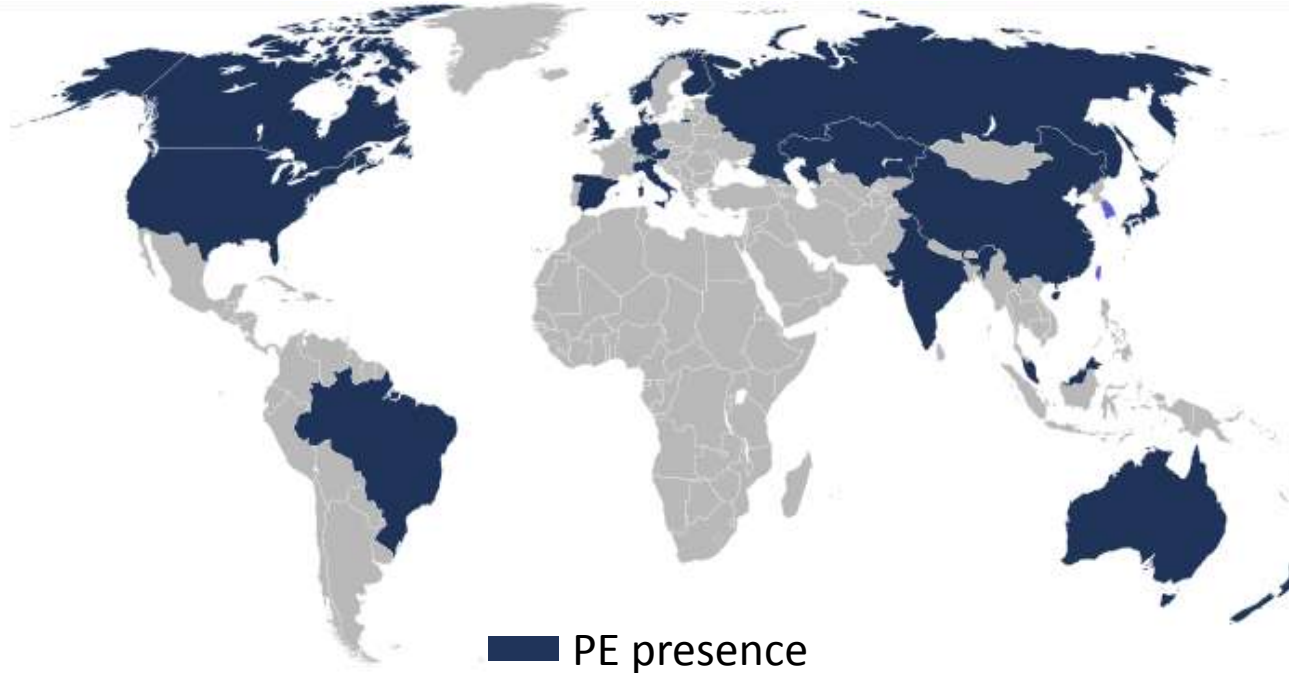
- Development of representative electronics LCI database.
- Evolution of the electronics industry and the role of LCE

## 4. Next Steps for PE's Electronics Database

## 5. Q&A



## Sustainability and only sustainability

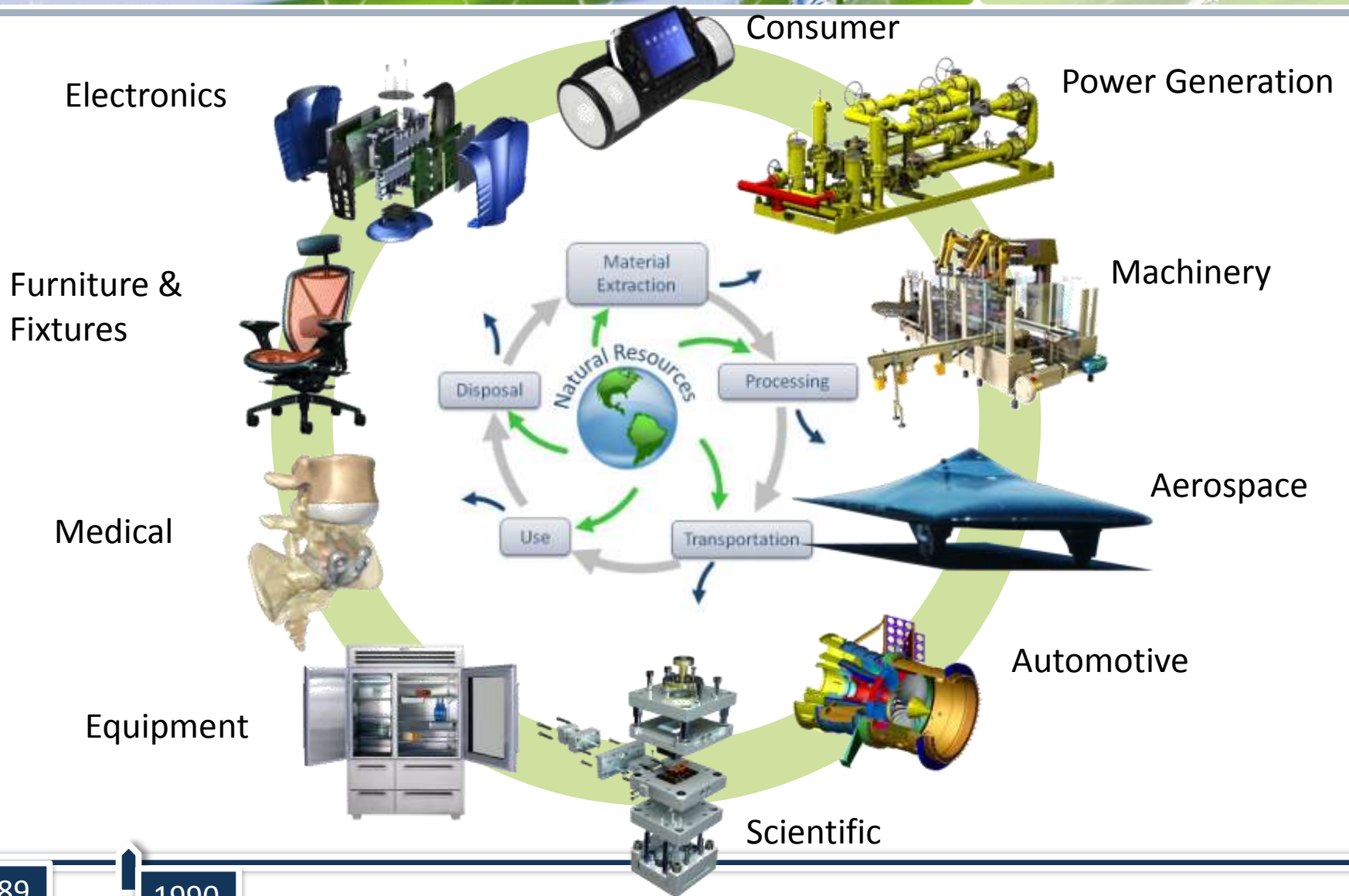


Experience on 3000+ projects gives our experts insight to every aspect of sustainability.

# Where we came from



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1989

1990



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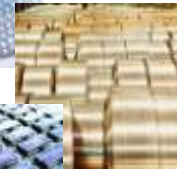
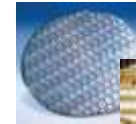
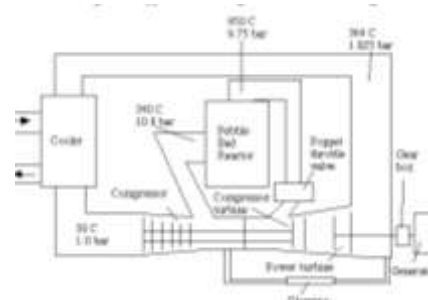
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# 1<sup>st</sup> gen. electronics LCA

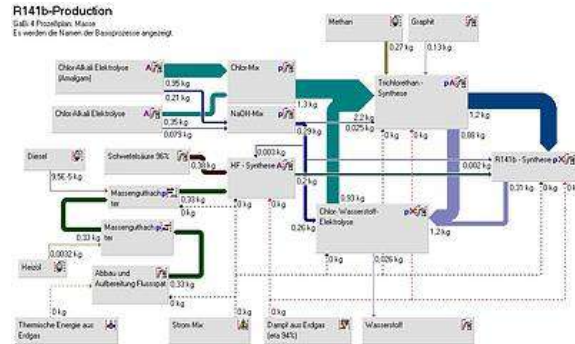
Materials to components



1989

1990

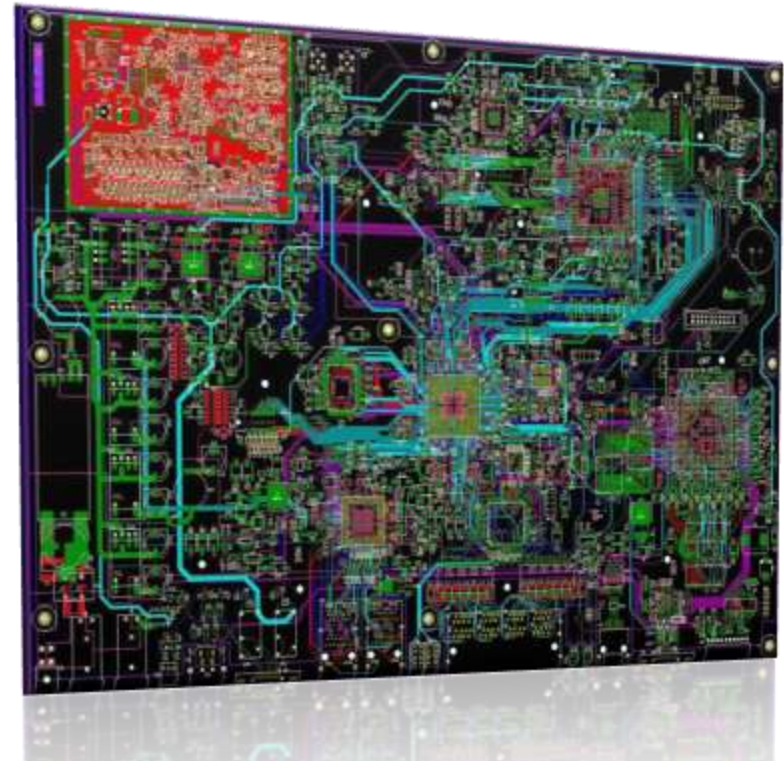
(+manufacture and transportation)



1990

1995

- Electronics are everywhere, in everything
- High turnover in component design (among other factors) leads to rapid product obsolescence
- The complexity of electronic products, both in term of:
  - the sheer number of componentsand
  - the type and size of components





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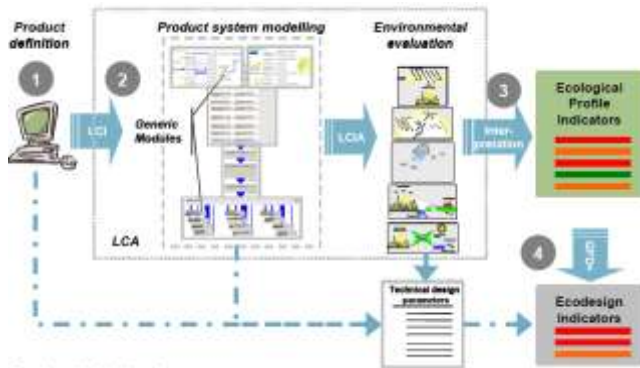
1. Introduction
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3. The Solutions
  - Development of representative electronics LCI database.
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4. Case Studies
5. Next Steps for PE's Electronics Database
6. Q&A





## Development of Environmental Performance Indicators for ICT Products

# EPIC-ICT



### Key methodologies

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





Representative environmental profiles of electronics components

Updated every 2-4 years

Quality checked and validated

Fully consistent

ISO 14040 and PAS 2050 compliant

Full life cycle



1996

2006

# What's included

Passive	Active
Capacitors	Diodes (signal/power)
Coils	Integrated Circuits
Resistors	LEDs
Switches	Transistors
Filters	
Oscillator Crystals	







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- Apple – Product Carbon Footprint and Reporting of Scope 3 Emissions for all products.
- Sony – Green Management 2010 Initiative strives to “conduct life cycle assessments for all major products”
- Palm – Environmental Programs to “guide product stewardship during its lifecycle, from initial conception through the end of life and disposal.”
- And many more...

# Who is doing it? Who is communicating it?



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**NOKIA**

**SIEMENS**

**TOSHIBA**



**BOSCH**



**RICOH**



**SANYO**

**SHARP**

2006

2009



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# What's next for the electronics LCI?



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- Continuous updates (2-4 Years)
- Expansion to new and emerging ICT components
  - Thin film/Flexible PWB



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