Case Study:

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Austrian Society for System Engineering and Automation

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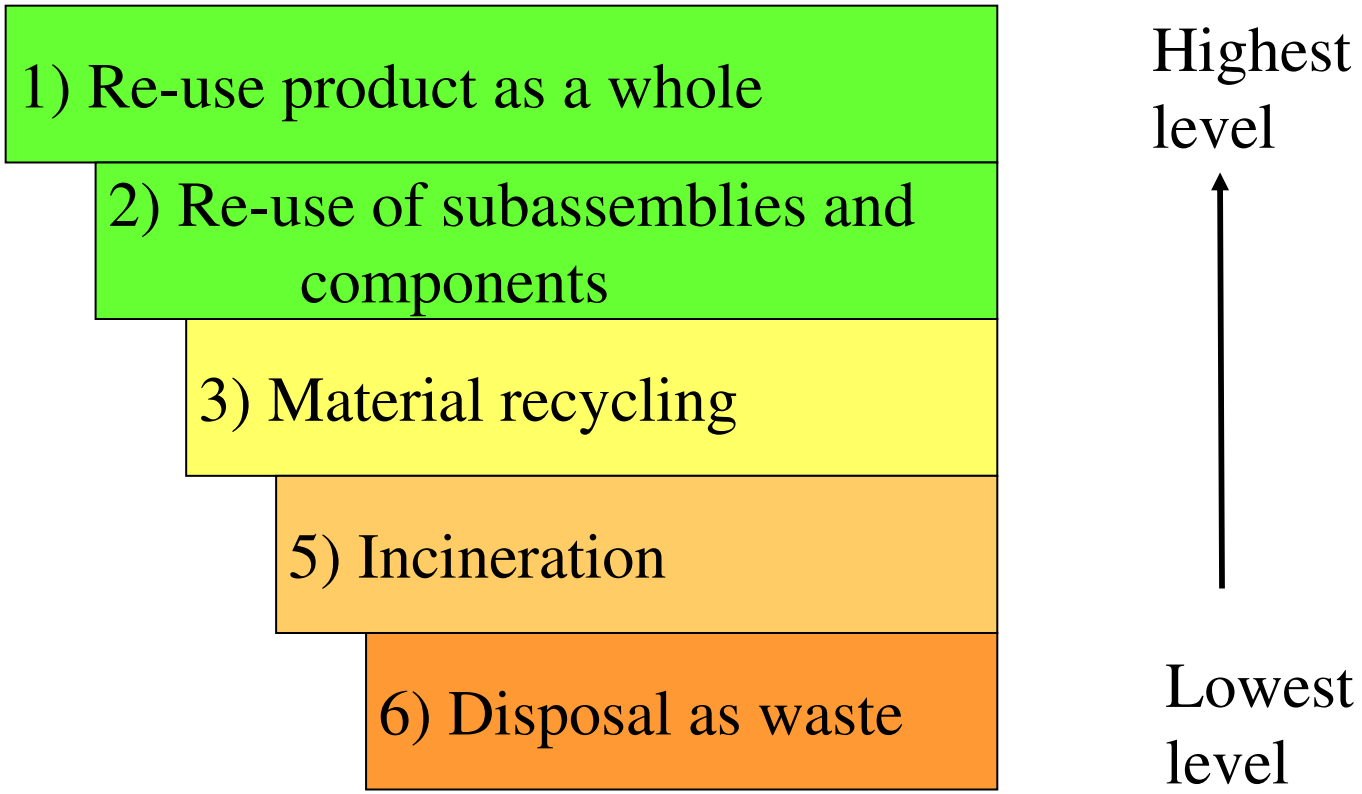
Austrian Society for System Engineering and Automation

- Your environmental solution provider for electr(on)ic products and services
- Non-profit association founded in December 1996
- more than 60 member organisations from 20 countries(e.g. 3M, Apple, IBM, Fujitsu Services, Matsushita, Motorola, NOKIA, Philips, Siemens, Sony, ...)
- located in Vienna (Austria)

The Strategy for the Multi Life Cycle Center

- **Recover discarded products at the highest possible level**
- **Getting most value out for maximum economic and ecologic benefit**

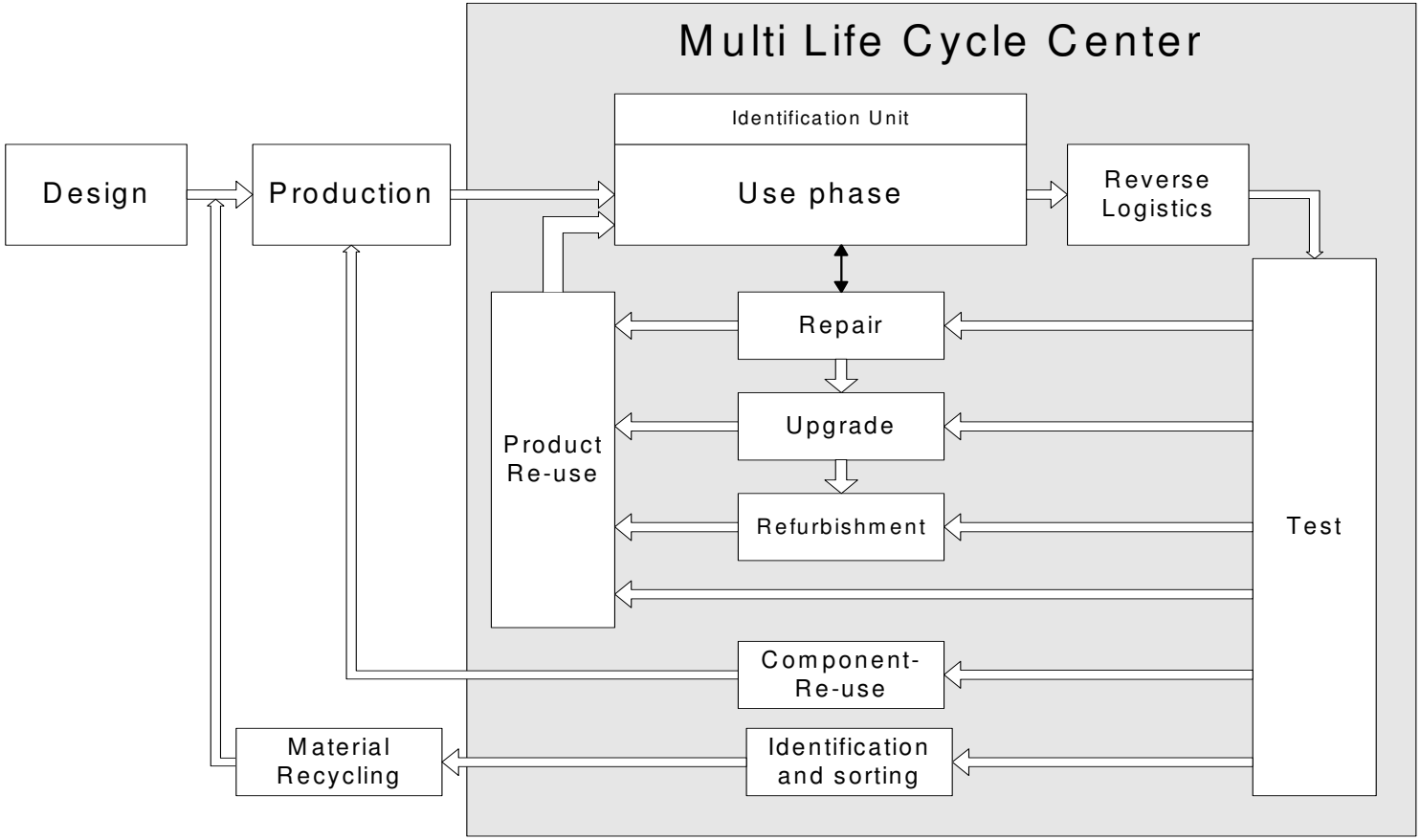
EOL Options for EEE



The Services of the Multi Life Cycle Center

- Re-use and Refurbishment of ICT products and mobile phones (Asset Management)
- Recovery of components (Component re-use)
- Dismantling / Pre-treatment of WEEE
- Materials Recycling
- Collection Logistics
- Reporting and Statistics
- Engineering Services (Automated assembly and disassembly)
- Design inputs (Consulting and Training)

Main Functions

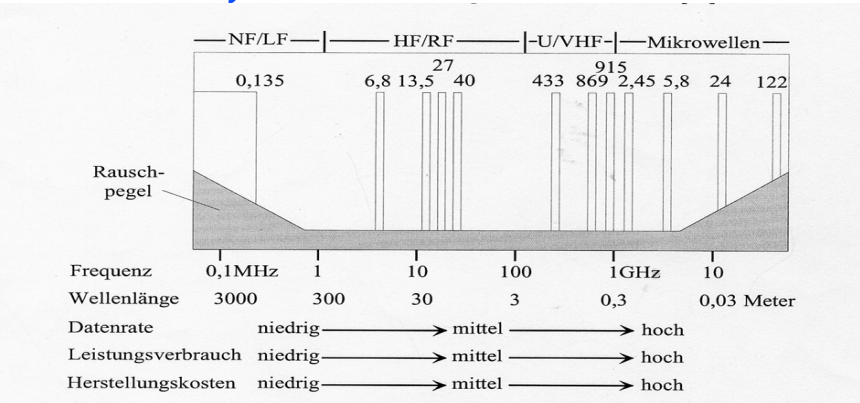


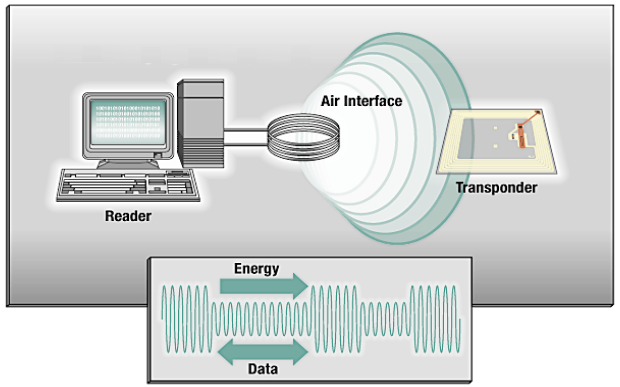
Enabling Technologies

- **Intelligent Reverse Logistics**
- **Innovative Asset Management System for IT**
- **Automated Disassembly Technologies**
  - Mobile Phones
  - Printed Wire Boards
- **Material Sorting**
- **In house CIM concept based on RFID**

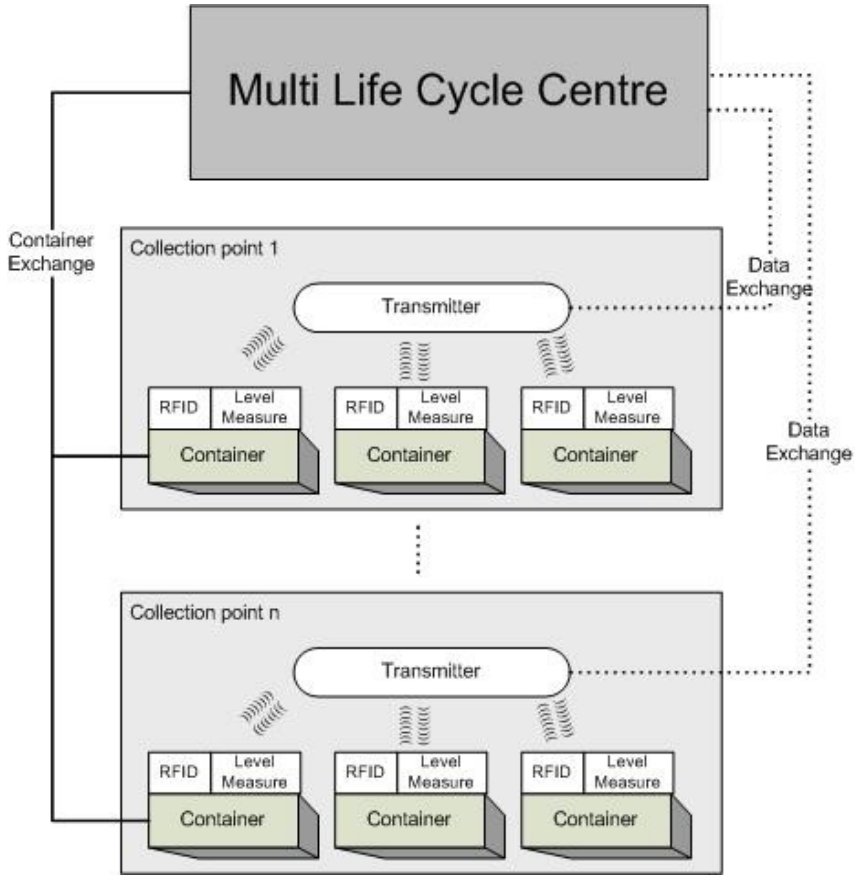
Intelligent Reverse Logistics

- **Using RFIDs (Radio Frequency Identification) for tracking of discarded products suitable for re-use**
- **Selection of optimal combination of transceivers and transponders according to costs, range, transfer rates, suitable for metal dominated products, etc.**





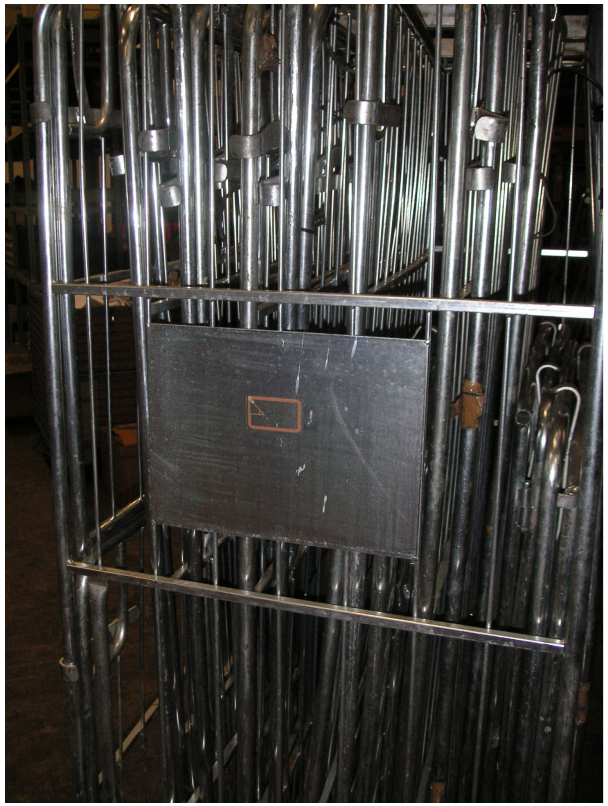
Schematic of the RFID Logistic System



Dificulties

- Mostly metal cages and containers
- Cages and containers do not belong to us and are exchanged regularly (container pool)
- Reading distances

=> Only applicable for internal logistics!



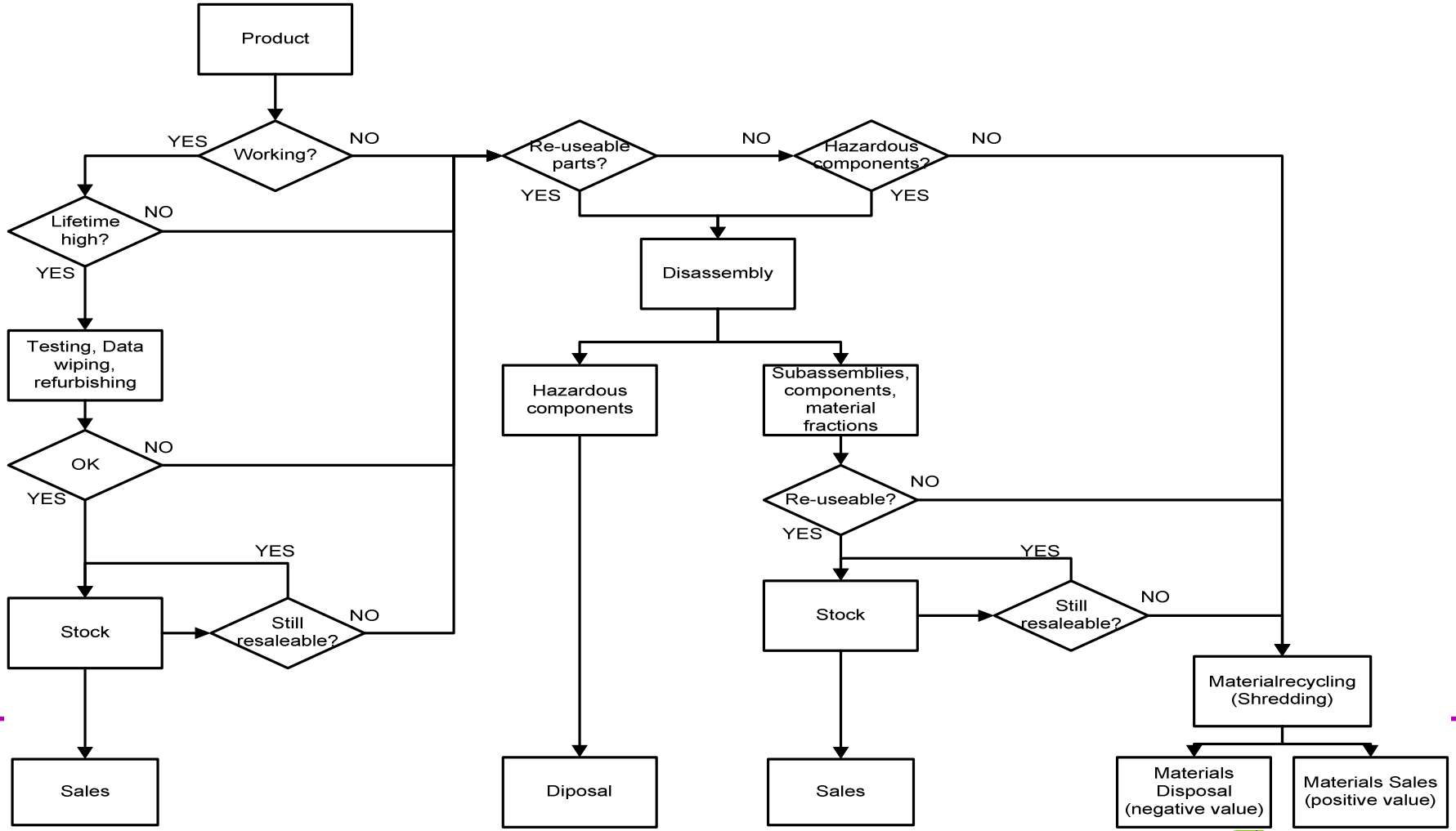
Innovative Asset Management

- **Re-use of equipment**
  - Automated testing of up to 8 PC simultaneously
  - (High security) data erasure
- **Re-use of subassemblies**
  - Manual disassembling stations
  - Testing of optical-, hard- and floppy drives
- **Re-use of components**
- **Optimal combination of Test-, Re-use- and disassembly workstations with conveyor belts**

Technologies

- Optimal combination of Test-, Re-use- and disassembly workstations with conveyor belt technologies
- Products on identifiable (RFID) “tablets” Tracking within the system

Process Flow

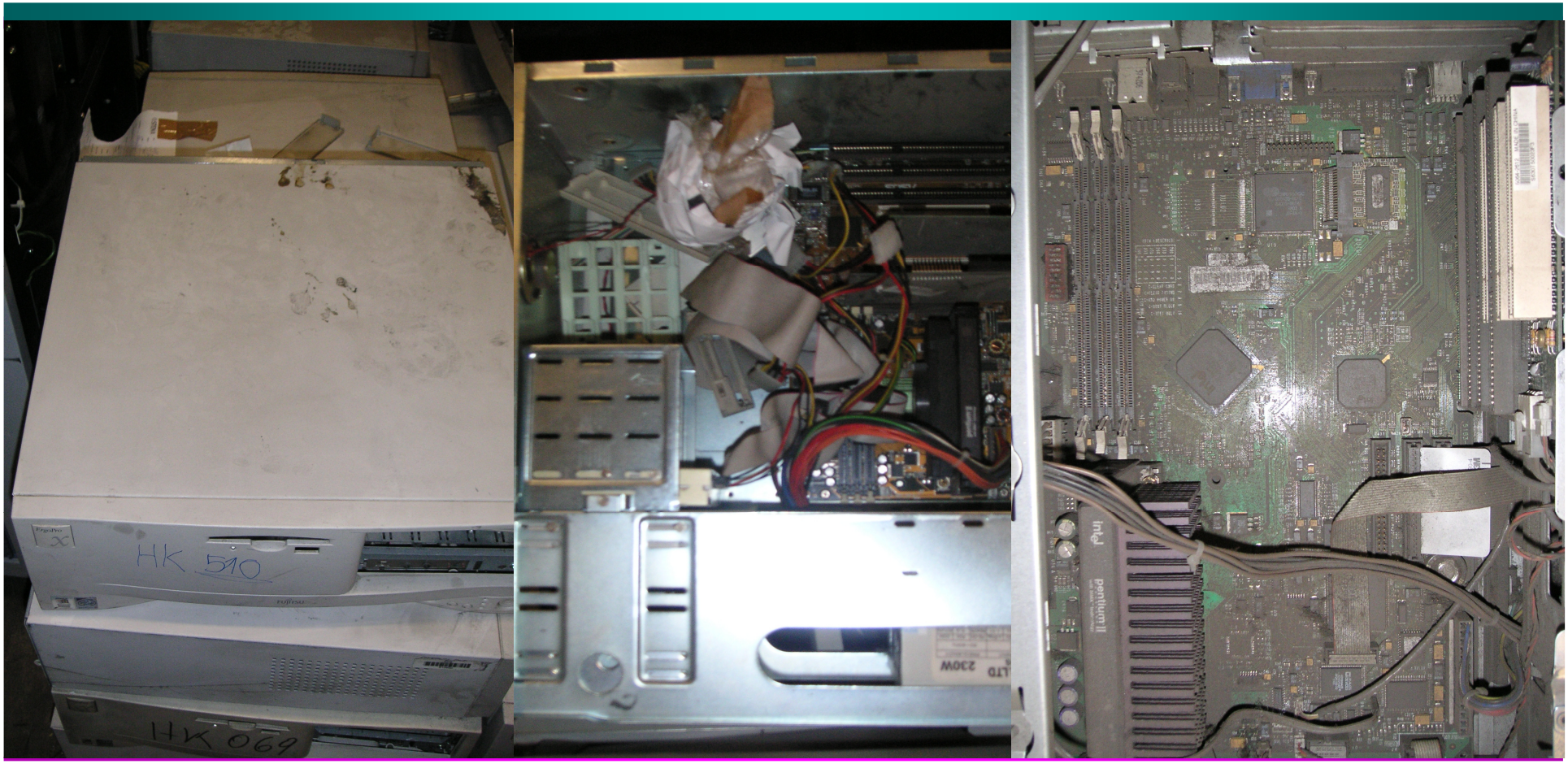


Experienced problems

Delivery in winter

B2B Take back

For Refurbishment/Upgrade?



Example 1:
Semi automated desoldering technology

- „Disassembly Families“
- Modular
- Flexible Disassembly Cell

Main Modules:

- Industrial robots
- Special gripping devices
- Disassembly tools
- Feeding and storage systems
- Transport systems
- Fixture systems
- Manual disassembly stations
- Intelligent control units
- („low cost“) vision systems for part recognition
- Various sensors
- Electronic components DB

Example 2:
Disassembly Cell for Mobile Phones

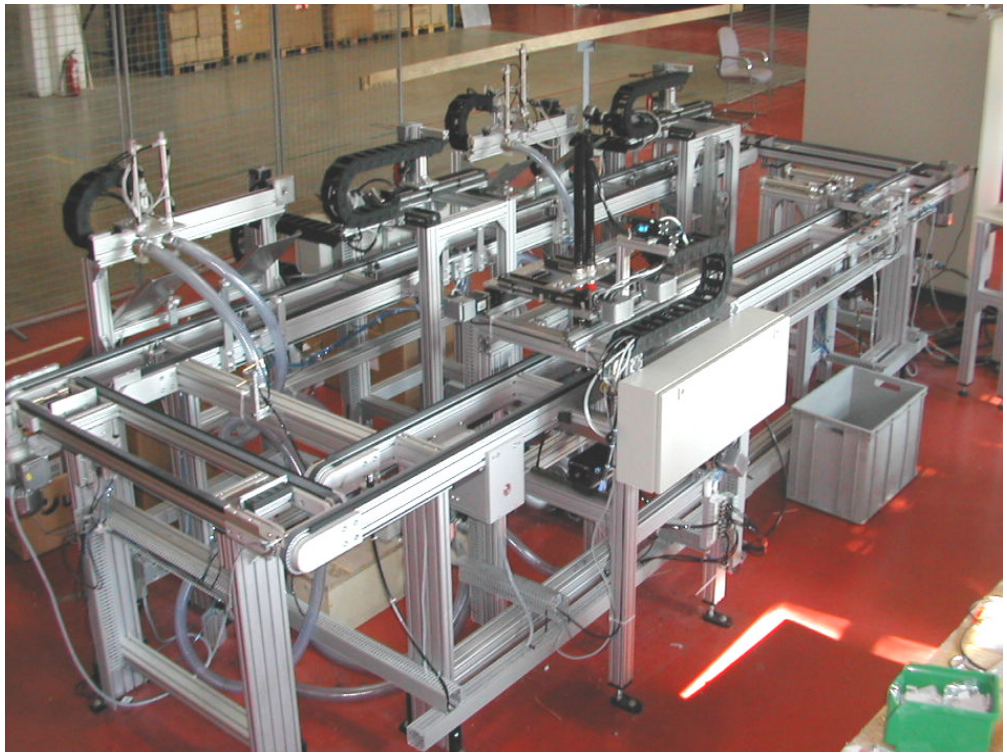
Features:

- **Types and producers of the mobile phones are identified automatically**
- **Re-useable components are extracted (Chips, LCDs,…)**
- **The process optimally combines destructive and non-destructive disassembly technologies**
- **The disassembled parts and fractions are sorted automatically to optimize material recycling values and minimize environmental impacts**

Implementation – Disassembly Cell for Mobile Phones

- **Modular design of the disassembly cell**

- 1 Manual feeding station and identification of model
- 3 screwing/drilling station
- 1 Milling station
- 2 parts handling stations
- 1 printed wire board desoldering station



Obtained Fractions

- **Very clean material fractions gained**
- **Minimum damage of valuable parts**
- **Following fractions are obtained:**
  - Batteries
  - Plastic parts (e.g. cover)
  - Rubber (keys)
  - Metals (e.g. screws, antennas)
  - Printed Wire Boards
  - Liquid Crystal Displays

Benefits of the Multi Life Cycle Center

- All demands from coming legislation (WEEE-Directive,…) are fulfilled already today
- The disassembly costs are minimized through an optimal combination of destructive and non-destructive as well as manual and semi-automated disassembly technologies
- Eco-efficient recovery of electronic products through extraction of re-useable components and optimized material recycling

How can we support you?

- Support to issue practical legislation
- Set-up of efficent collection system
- Selection of suitable dismantling and treatment methods (depending on volume)
- Training of employees /Partnership in operation
- Selling of re-usable products and recyclables
- More than 2 million mobile phones re-used

Steering Board (status as of June 2008)

Braden Allenby, Arizona State Univ.
Martin Charter, Univ. Creative Arts
Patrick Eagan, Univ. of Wisconsin-Madison
Georg Fröhlich, Electrocycling
Hiroyuki Furukawa, Panasonic / ENE
Edward Grenchus, IBM
Christian Hagelüken, Umicore
Carol Handwerker, Purdue Univ.
Jean-Pierre Hannequart, ACRR
Charuek Hengrasmee, Thai Electrical and Electronics Institute
Constantin Herrmann, PE International
Klaus Hieronymi, HP
Maarten ten Houten, Philips
Zsolt István, BayLogi
Bernd Kopacek, SAT
Joan Krajewski, Microsoft
Rüdiger Kühr, United Nations Univ.
Nils F. Nissen, Fraunhofer IZM
Raymond Nyer, RNC
Bob Pfahl, iNEMI
Lutz-Günther Scheidt, Vienna Univ. of Technology
Chris Slijkhuis, MBA Polymers
Eelco Smit, Epson
Markus Stutz, Dell
Francesco Veglio, Univ. L'Aquila
Achim Winter, CCR
Norbert Zonneveld, EERA

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Going Green
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November 8 - 11, 2010
Schoenbrunn Palace Conference Centre
Vienna, Austria

First Announcement & Call for Papers

America

Europe

Asia

Key Questions and main subjets

The program will feature the latest in environmental design, clean manufacturing, energy-efficiency, climate change, new eco-efficient technologies, collection, reverse logistics, refurbishment, carbon trading, re-use, recycling and policy making from leading experts in industry, academia, consulting, recyclers and public area around the globe. Leading companies and institutions in green electr(on)ics will present their innovative products, processes and services at the exhibition. On the last day of the conference participants will have the possibility to visit leading companies and research organisations in the Vienna Region.

- Legal Compliance & Global Harmonization
- Sustainable Products and Services & Leading Edge Technologies
- Corporate Social Responsibility & Management
- Energy-efficiency & Climate Change

All companies in the electr(on)ics, automotive, solar and PV, chemical and recycling industry, power suppliers, electricity generators and distributors, contract manufacturers, material and component suppliers, service and logistic companies, collective systems, academia, consulting and public authorities (local, regional, international) are invited to attend and contribute.

If you like to name topics for the conference you are especially interested in, send an email to **info@care-electronics.net** by **August 15, 2009** the latest.

For the detailed and regularly updated list of topics please see
www.care-electronics.net/CI2010

Continuing the Success Story of 2006

- 134 Presentation were held in 31 sessions
- 331 participants mainly from industries from 28 countries in America, Asia, Australia and Europe joined the conference
- 16 exhibitors presented their companies and products
- HP, EARN, ECOLIFE II, CCR, ENDS, ENVIRON, ERA, ISL, Microsoft, PE International, Green Electronics Council, Interseroh, DHL, … sponsored the conference

Sponsoring

Sponsoring **Going Green – CARE INNOVATION 2010** provides you the perfect opportunity to reach executives of producers (OEMs and CEMs) and their suppliers, retailers, large users, logistic and software companies, national and international government officials, trade associations and collective systems, recyclers, consultants and academia.

We are happy to develop with you the tailor made solution that fits you best.
Please contact Christina Meglitsch at **meglitsch@care-electronics.net** or
+43 664 501 67 63!

Location: Schoenbrunn Palace Conference Centre Vienna (Austria)

Schoenbrunn Palace together with its ancillary buildings and extensive park is by virtue of its long and colourful history one of the most important cultural monuments in Austria. Scheduled as a listed monument, the whole ensemble, including the palace, the park with its numerous architectural features, fountains and statues and not least the zoo – the oldest of its kind in the world – was placed on the UNESCO World Cultural Heritage List in 1996.

The conference will take place in the Apothecaries' Wing on the eastern side of Schoenbrunn. This unusual venue has an interesting past: in the 18th century the largest of the rooms adjoining the east side of the Orangery was used for overwintering the valuable and tender citron plants and thought to be the only example of its kind in Europe.

Call for Papers - Instructions for Authors

Please mail abstracts for oral presentations or posters (1 A4 page, pdf or doc) to **info@care-electronics.net** before May 31, 2010.
The abstracts must contain the conference topic, title, names of authors, affilliation and address!

Important Dates

May 31, 2010	Abstract Deadline
June 20, 2010	Confirmation of accepted abstracts
July 31, 2010	Deadline for submission of full paper
September 1, 2010	Preliminary Program on the web
September 8, 2010	Deadline for Pre-Registration discounts
October 1, 2010	Deadline for exhibition booths
October 24, 2010	Registration deadline
November 8, 2010	Official opening

Information Updates

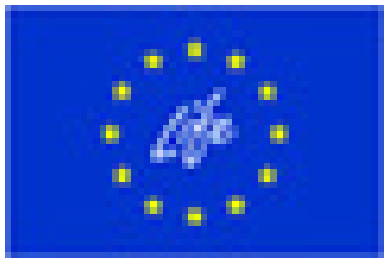
All information on www.care-electronics.net/CI2010 will be continuously updated. Please check regularly!
If you want to be informed of all major updates, please fill in the Contact Form on our website.

Information

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.createPage&s_ref=LIFE04%20ENV/AT/000007

or

bernd.kopacek@sat-research.at



The MLC² project is part of the LIFE III Environment program, which was founded by the European Commission