Consortium for Sustainable Management

SOLVING THE E-WASTE PROBLEM

National Institute for Environmental Studies

Reuse in Europe
Today and Tomorrow

Willie Beuth

17.11.2006

Consortium for Sustainable Management

is an international network of committed partners active around the globe.

Our successful cooperation stems from a common vision of a sustainable economy anchored in principles of social and ecological responsibility.

An Established Concept

- 3p stands for **Profit, People, Planet.**
- 3p faces the challenge to interlink these three essential factors.
- 3p is represented by an international board of practitioners and academics

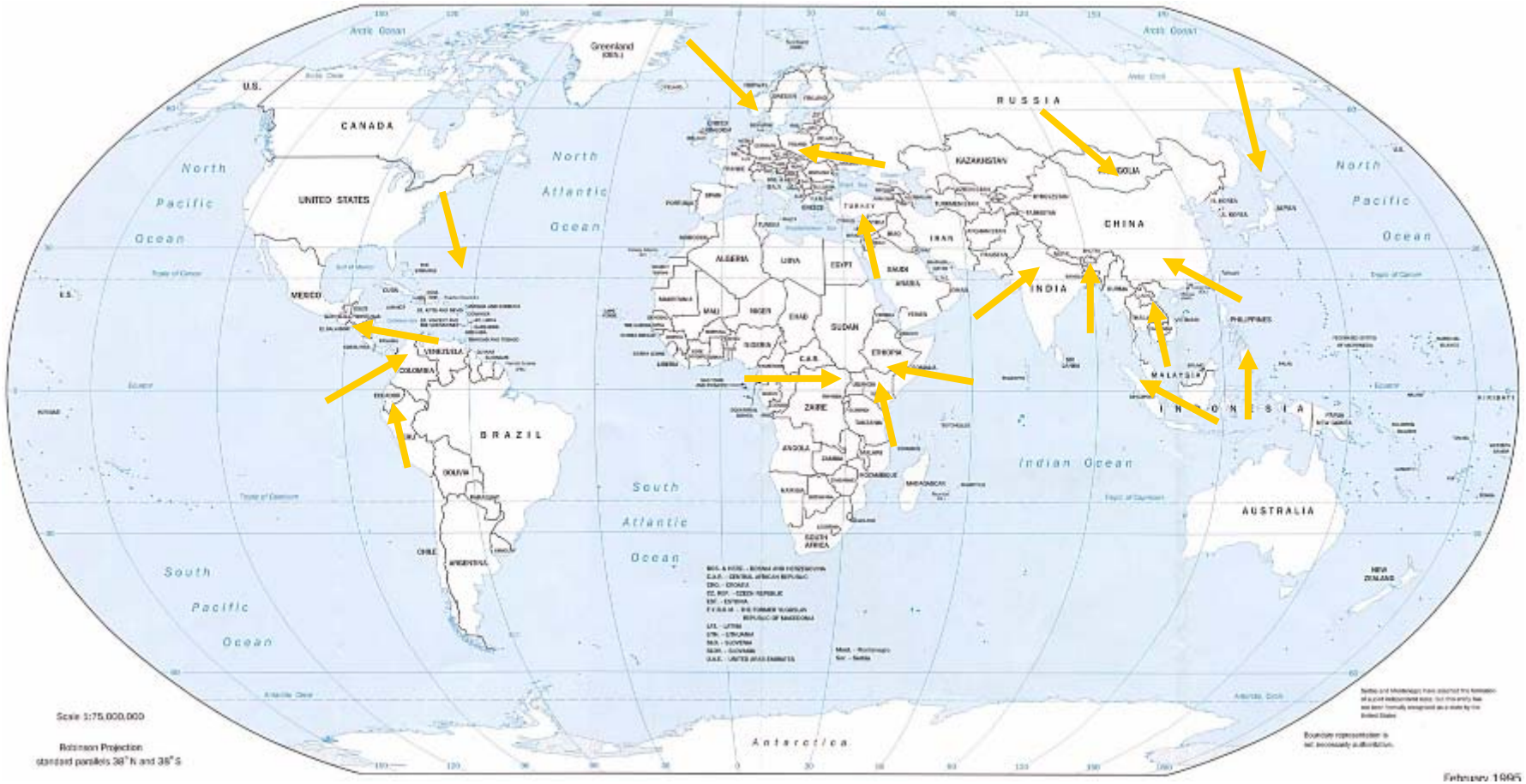
Service Areas

- Global Performance Database
- Performance Assessment
- Datapool and Research
- Supply Chain Management Systems
- Public Private Partnership Projects (PPP)

Areas of Activities

- Textile & Apparel
- Fishery & Aquaculture
- Agro Food (Primary & Processed)
- Waste Management
- ITC & Electronics
- Toys
- Cosmetics
- Financial Services

- Partners are the international trade and industry, governmental, non-governmental and scientific organisations and institutes
- Main project regions are emerging markets in Asia & Africa



Philosophy

3p follows the **begin-of-pipe** principles.
Instead of just looking at the final assembling of a product, 3p starts at the very beginning of a production process including all components.
Every step of the production chain, its materials and processes are considered and assessed.
Every member in the supply chain, its components and processes are subject to observation, evaluation and corrections leading to the highest efficiency and lowest risk possible.

Approach

3p combines the principals and strengths of academic and practical approaches attaining a set of pragmatic tools for taylored solutions.

To remain always ahead 3p constantly conducts research on future trends and operational fields.

Just remember …

- **Reduction** is the vision.
  Therefore we have to develop common ways to extent the life-cycle and change consumer habits for sustainability.

- **Refurbishing** is the process
  of major maintenance or minor repair of EEE to make them reusable.

- **Reuse** is using an EEE item more than once.
  This includes conventional reuse where the item is used a number of times for the same function. It is distinct from recycling.

- **Recycling** brakes down
  the used EEE item into raw materials used for new products.

Current Reuse situation in Europe

„Only the sustainable assurance of all reuse criteria can exploit the enormous potential of reuse of EEE. In order to achieve this situation reuse has to be exactly defined, a legal framework has to be tailored, environmental principles have to become aware, and the whole process needs to be traceable complying with holistic pre-conditions.“

StEP
SOLVING THE E-WASTE PROBLEM

Active Participants (Status: 03/11/2006)

- **United Nations**
  - United Nations University (UNU)
  - United Nations Environment Programme (UNEP)
  - United Nations Conference on Trade and Development (UNCTAD)
- **Governmental and Development Cooperation**
  - German Technical Cooperation (GTZ)
  - Swiss State Secretariat of Economics (SECO)
  - Minnesota Pollution Control Agency (USA)
  - United States Environmental Protection Agency (US-EPA)
- **Industry**
  - AER Worldwide
  - Apple Germany
  - Cisco
  - Dell
  - Earth Protection Services, Inc. (EPSI)
  - Ericsson
  - Flection
  - GreenOAK Solutions
  - Hewlett Packard
  - MicroPro
  - Philipps
  - Taizhou Chiho Tiande
  - TechProtect
  - Umicore Precious Metal Refining
- **Academia & Research**
  - Chinese Acadamy of Sciences, Research Center for Eco-Environmental Sciences
  - Massachusetts Institute of Technology (MIT), Material Systems Laboratory
  - Technical University Vienna (Austria)
  - EMPA (Switzerland)
  - The Fraunhofer Institute for Reliability and Microintegration (Germany)
  - French National National Institute of Telecommunication (France)
  - TU Delft (Netherlands)
  - University of California, Berkeley, Consortium on Green Design and Manufacturing (USA)
  - University of Melbourne, Faculty of Engineering (Australia)
  - GAIKER Foundation (Spain)
  - Regional Environmental Centre (Hungary)
  - Korea Institute of Geoscience & Mineral Resources (South Korea)
- **NGOs**
  - The Sustainable Trade & Innovation Centre (Germany)
  - The 3P Consortium for Sustainable Management (Germany)
  - The Öko-Institut (Germany)
  - INFORM (USA)
- **Others**
  - Thai Electrical and Electronic Institute (Thailand)
  - Project Heatsun (Ireland)
  - AEA Technology (United Kingdom)
  - JETRO-IDE (Japan)
  - Rifer Environmental (USA)

Target of StEP

Together with prominent members from industry, governments, international organizations, NGOs and the science sector actively participating in StEP, we initiate and facilitate approaches towards the sustainable handling of e-waste.

The objectives of Reuse Task Force

- Common nomenclature
- Reuse entry
- Current practices study
- Equipment recovery
- Messaging
- Quality Standard
- Overcoming barriers
- Trans-boundary shipments
- Roles
- Capacity Development
- Research

European Situation is determined by Directives

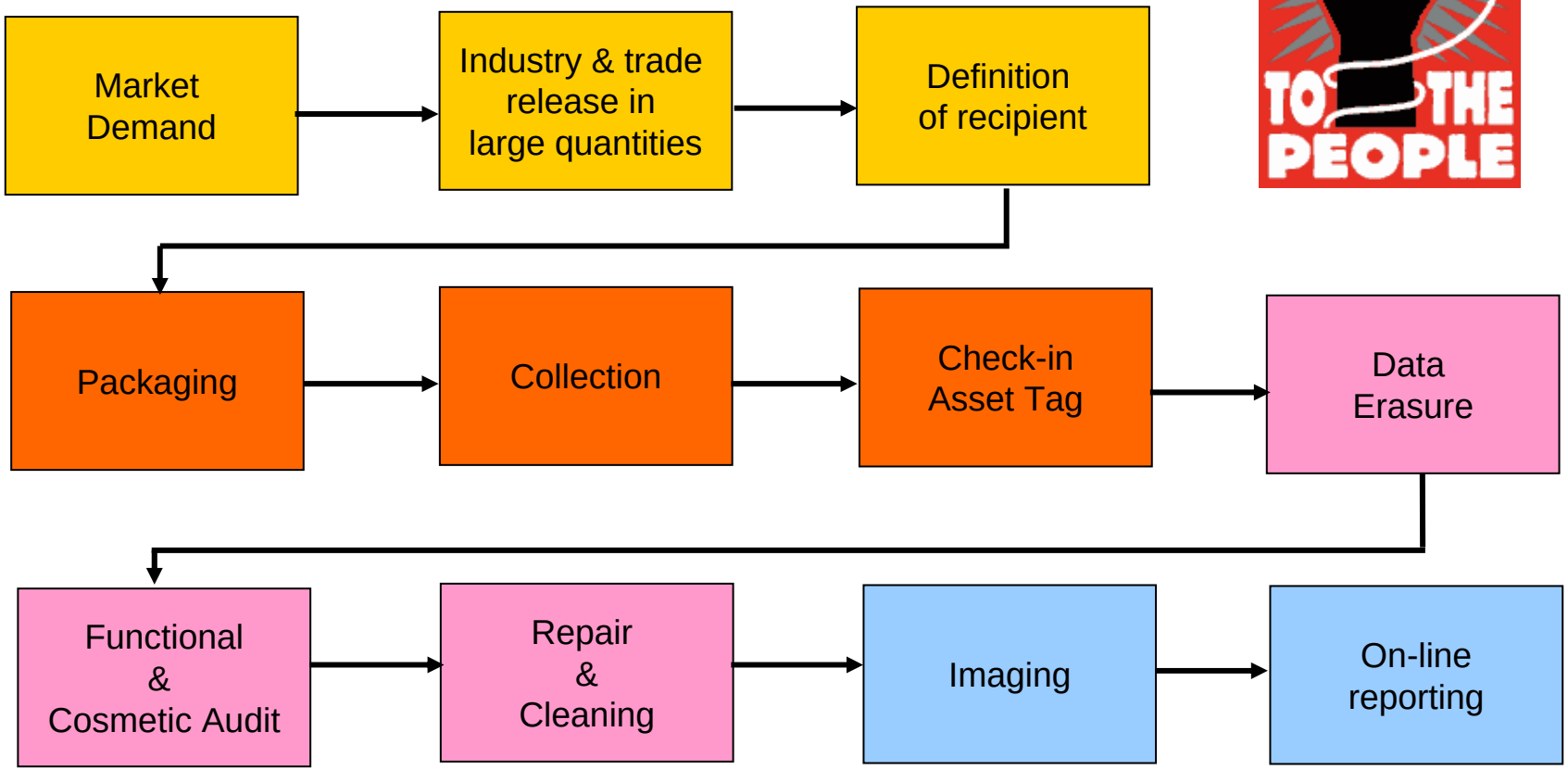
- Waste Electrical and Electronic Equipment (WEEE)
- Reduction of Harzardous Substances (RoHS)
- Registration, Evaluation and Authorisation of Chemicals (REACH)

→ Currently there is no legal framework declaring used EEE as no waste

→ We are an affluent and disposal society, but have to reuse now due to lack of natural resources and environmental protection

Reuse today


P.C.s
TO THE
PEOPLE


Market Demand
Industry & trade release in large quantities
Definition of recipient
Packaging
Collection
Check-in Asset Tag
Data Erasure
Functional & Cosmetic Audit
Repair & Cleaning
Imaging
On-line reporting

Pro´s

- Divert material from disposal
- Provide social benefit
- Conserve natural resources and reduces pollution

Con´s

- No concrete market data
- Insufficient legal framework
- Lack of information about product components (origin & substances)

The main open questions in Europe …

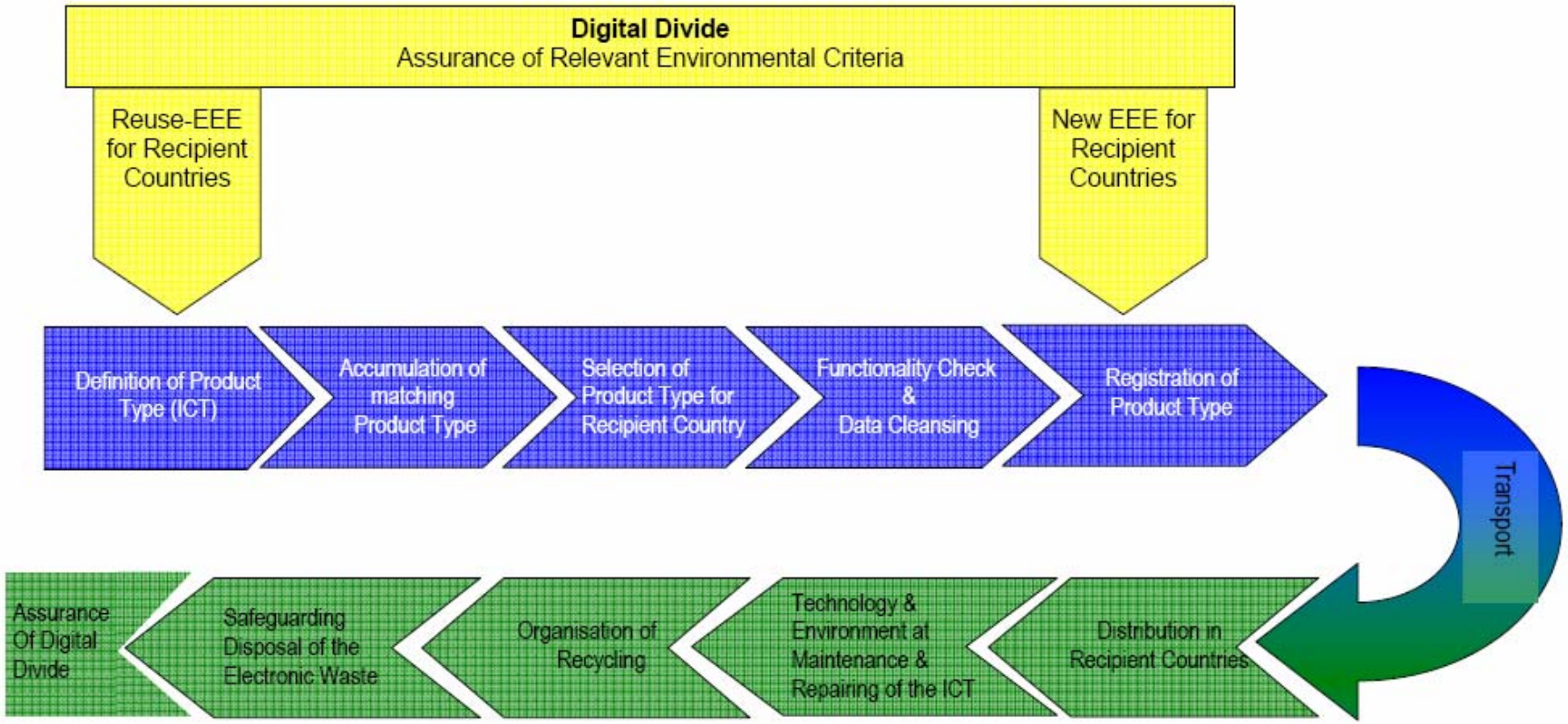
Why European consumers store their used EEE?

What is the concrete quantity of which product line?

What could be the ideal emotional and monetary assets for consumers and the economy introducing a take-back-system for used EEE?

Which technical infrastructure is needed to realize a take-back-system for reuse?

There are existing Schemes for Digital Divide …


Digital Divide
Assurance of Relevant Environmental Criteria
Reuse-EEE for Recipient Countries
New EEE for Recipient Countries
Definition of Product Type (ICT)
Accumulation of matching Product Type
Selection of Product Type for Recipient Country
Functionality Check & Data Cleansing
Registration of Product Type
Transport
Distribution in Recipient Countries
Technology & Environment at Maintenance & Repairing of the ICT
Organisation of Recycling
Safeguarding Disposal of the Electronic Waste
Assurance Of Digital Divide

And what about the rest …

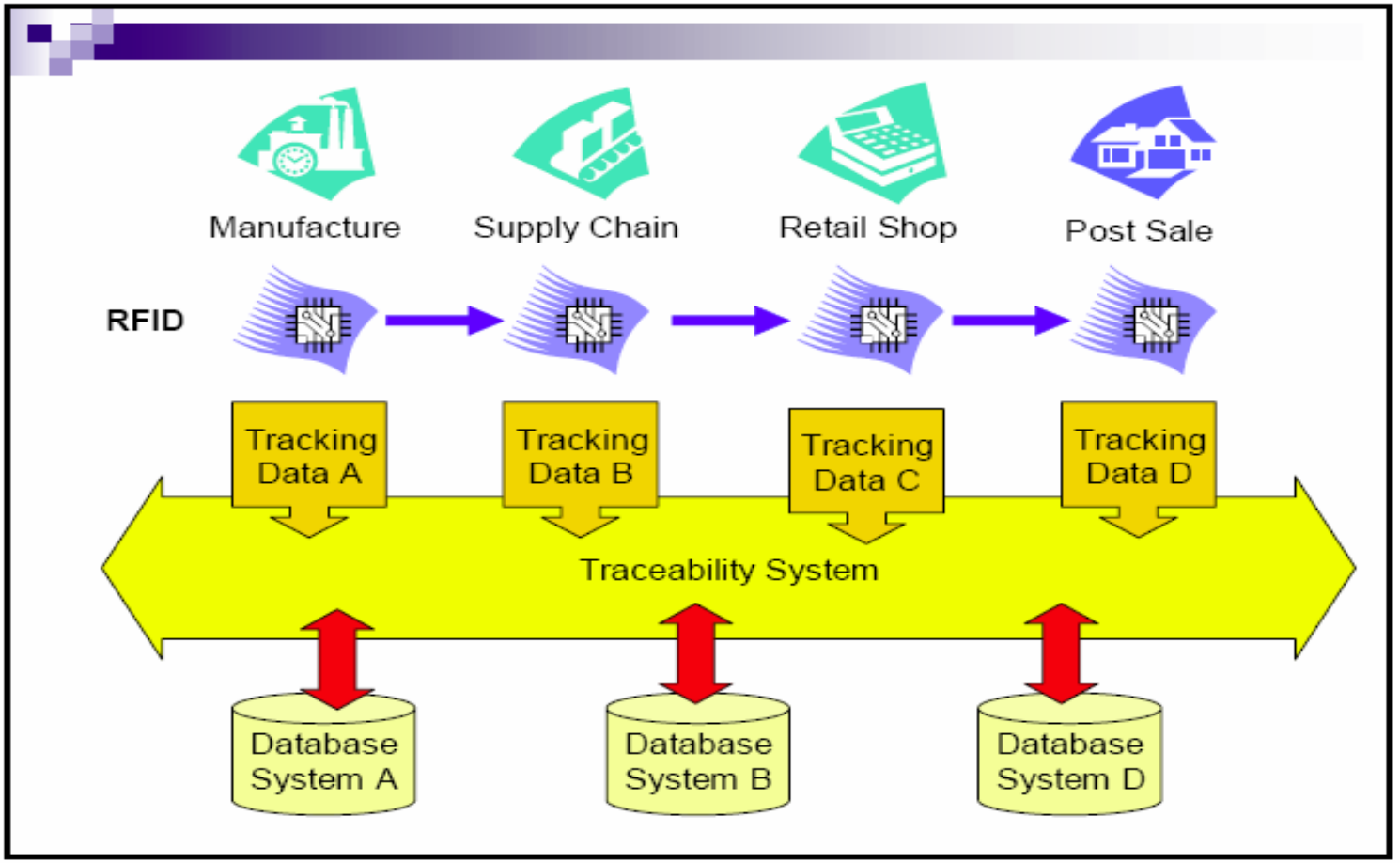
- No Traceability System
- No Risk Management
- Brand Image Damage

Are there solutions?

We will never reach the perfect circle …

… but we have to insist on a common global approach using the following requisites and tools to reach a common basic platform in understanding …

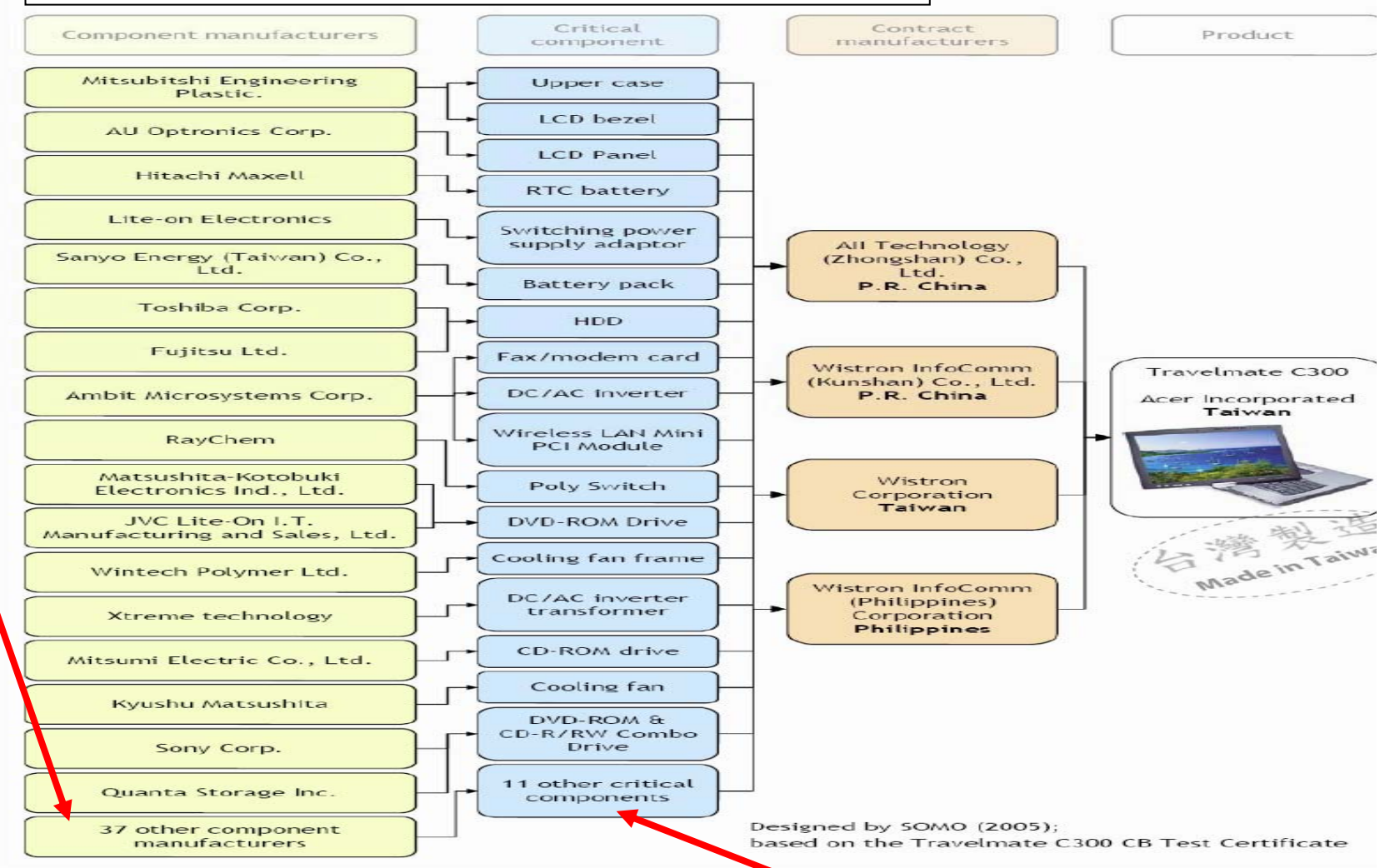
A Traceability System is essential …



Conception of Traceability System

Takato Natsui
Professor at Meiji University, Tokyo, Japan
Asuka-Kyowa Law Firm, Tokyo, Japan

Traceability System …



Traceability System …

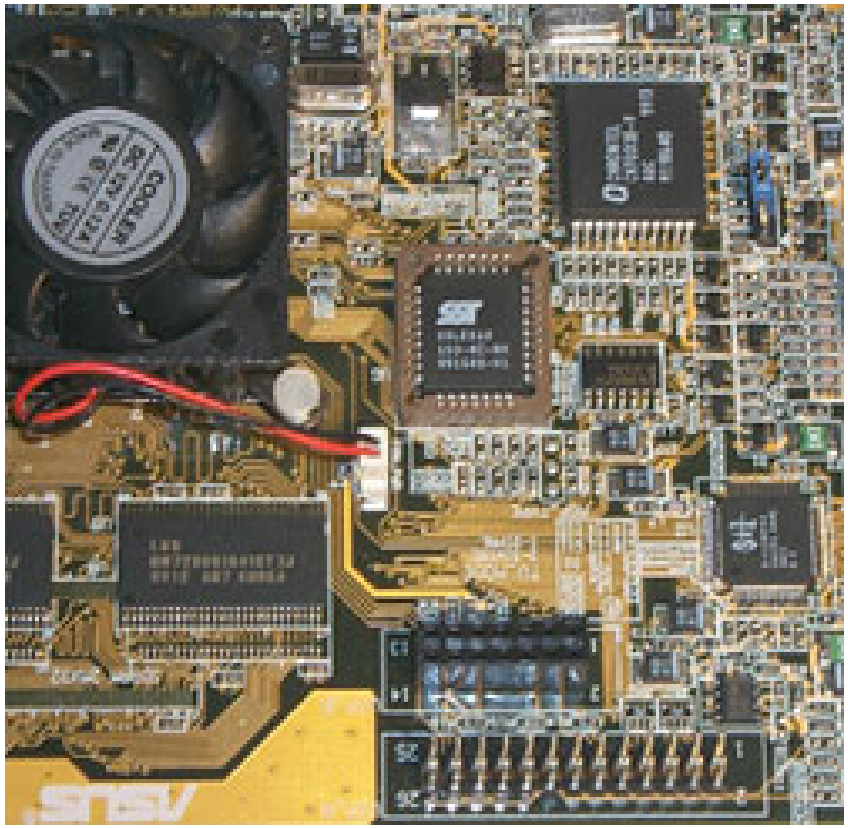
Database

(Components, Processes, Supply Chain Partners)

I.	Producer				
1	Name of the producer				
2	Address of the producer				
3	Country of production				
	Please fulfil the list:				
4	Type of Product		Production Volume		7
5	Production Series		Function of appliance		8
6	Construction year				
10	Please, tick the category of appliance ?				
	Large household appliance		IT & telecom-munication equipe-ment	Tools	
	Small household appliance		Consumer equipment	Toys	

Traceability System …

Database (Components and Materials)



III.	Components and Materials			
25	iron			
	e.g.	copper		
		nickel		
		silver/gild/palladium		
		others		
		zinc		
		tin		
	lead			
	mercury			
	mercury switch			
	metals			
	other thermoplastics			
	paper			
	plastics			
	polychlorine naphthalene (PCN)			
	polypropylene			
	polyurethane foam			
	printed circuit board (PCB)			
	relay scrap			
	residual materials			
	steel electro-plated/coated			
	steel galvanized			
	steel plastic-coated			
	thermoset			
	timber			
	transformer			
	other components:			

A Risk Management System is vital …

Database

(Electrical and Safety Information and Instructions)

II.	Electrical and Safety Information and Instructions		
	Please, indicate the following information about electrical power according to the appliance's type:		
11	Operating performance		
12	Power drain		
13	Limit in volt		
14	Limit in ampere		
15	Limit in watt		
16	Which type of power source ?		
17	Is a grounded power outlet needed ?	yes	no
18	What is the total ampere rating ?		
19	Is there need for a over-current protection ?	yes	no
20	What is the system voltage ?		
21	Is there a heat protection limit ?	yes	no
	If yes, define the limit.		
22	Is the appliance sensitive to cold ?	yes	no
23	Is the appliance sensitive to damp ?	yes	no
24	Which other important safety instruction exist ?		

Risk Management System …

Database (Collection and Transport)

V.	Collection and Transport				
47	Is there a defined department which is responsible for reuse activity ?			yes	no
48	Can you name the person in the department ?				
49	Who is collecting the appliances ?				
50	Are there different organization involved in collection ?			yes	no
51	If yes, how many ?				
52	If yes, could you describe the process ?				
53	Where does the organization collect the appliances ?				
	In the region				
	In the whole country				
	In different countries				
	Others				
54	From which target group appliances are collected ?				
	Consumer households		Retailer		
	public collecting points		Trader		
	private collection points		others		
	producers				
55	Under which criteria the organization collects the appliances ?				
	appliance in general				
	definite appliance				
	others				
V.	Collection and Transport				
56	Are the appliances checked after collecting ?			yes	no
57	If yes, under which criteria ?				
	optical appearance				
	functioning				
	weak spots				
	unit of power				
	others				
58	Who is checking the appliances ?				
59	Do the responsible persons have sufficient qualification ?			yes	no
60	Are defect appliances be sorted out ?			yes	no
61	If not, are they marked as not functioning ?			yes	no
62	Is there a documentation about the check up ?			yes	no
63	If yes, will the documentation send to the country of destination with the appliances ?				
				yes	no

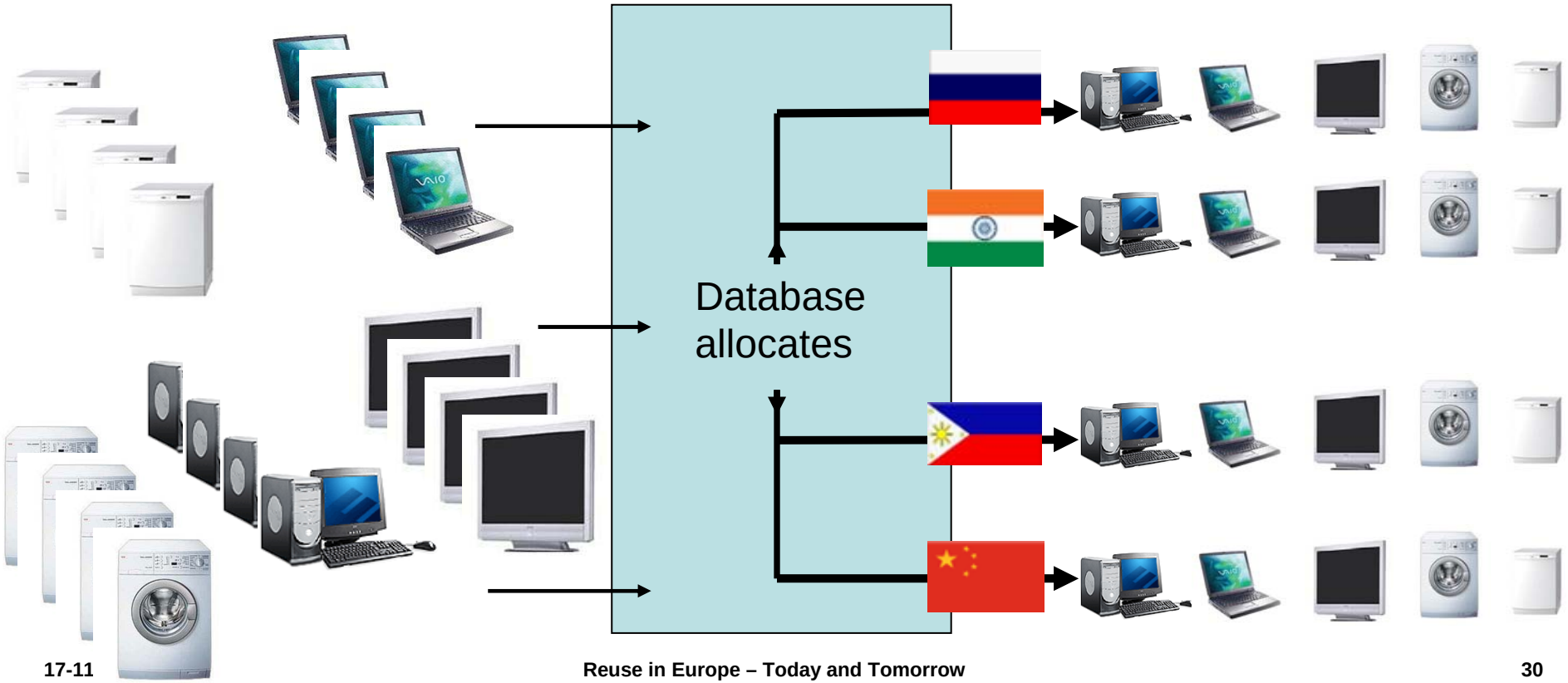
Risk Management System …

Database (Outbound Supply Chain)

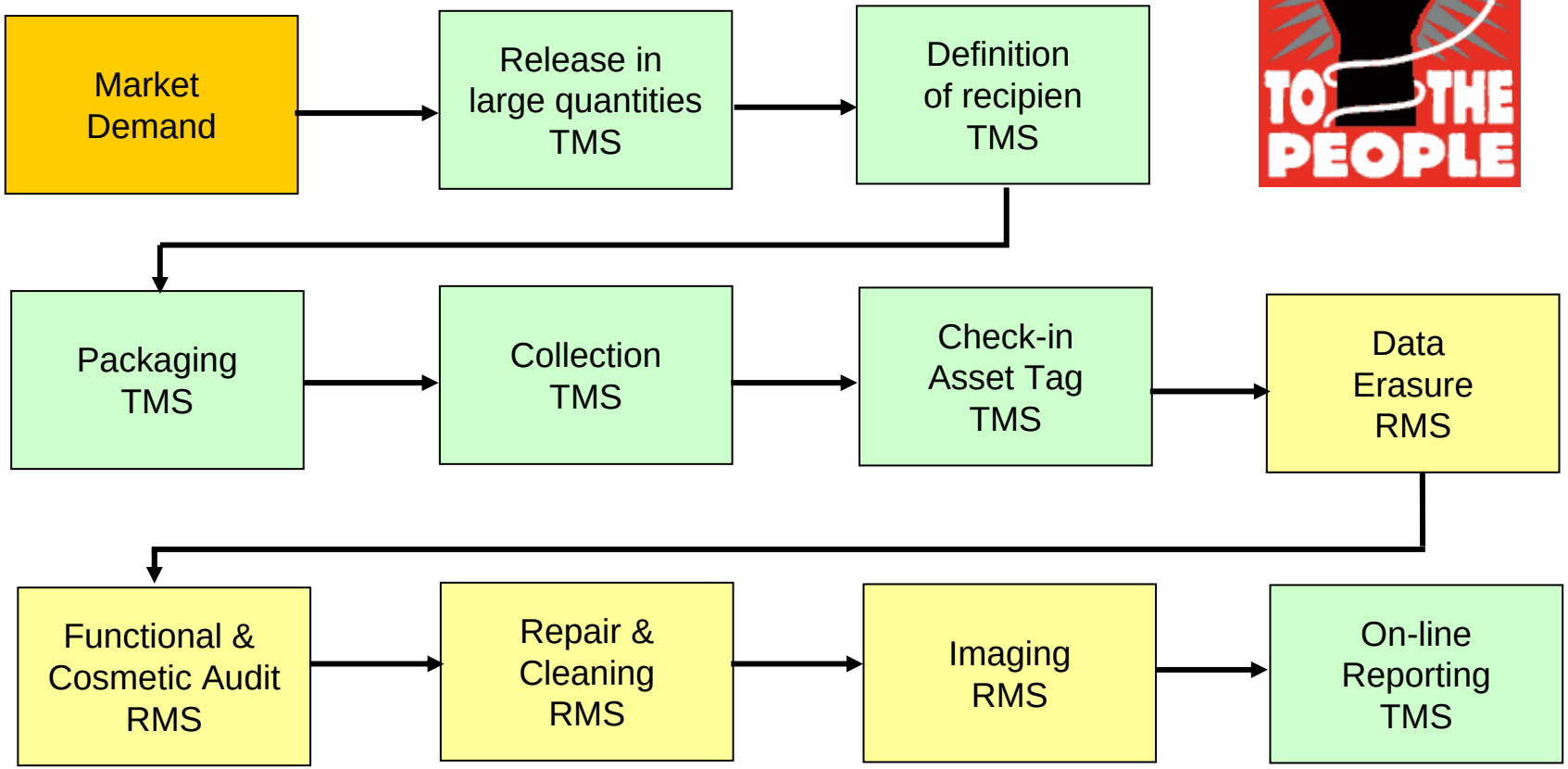
VI.	Outbound Supply Chain					
80	Are the appliances declared to customs ?				yes	no
81	Are the appliances checked in the country of destination ?				yes	no
82	If yes, by whom ?					
	Distributor		Subcontractor			
	Technical Assistance		Unknown			
83	What are the criteria for the check ?					
	Type					
	Production series					
	Appliance's function					
	Construction year					
	Number					
	Optical appearance					
	Functioning					
	Weak spots					
	Unit of power					
	Others					
84	Are there any possibilities to repair these appliances ?				yes	no
85	If yes, who is doing that ?					
86	Is there any possibility to maintain appliances ?				yes	no
87	If yes, who is doing that ?					
88	Are there enough spare parts ?				yes	no

Risk Management System …

Database (Product Allocation Pool)



Reuse tomorrow



And the combination of

Traceability & Risk Management Systems

will allow us to comply proactively with any existing or future directive e.g. WEEE. RoHS, REACH etc.

… and will minimize image problems and on top open easier ways to a solid brand protection.


Leadership is daring to step into the unknown
Stephen Hawking

StEP Secretariat
United Nations University
Zero Emissions Forum
European Focal Point
UN Campus
Herman-Ehlers-Str. 10
53113 Bonn / Germany

Tel.: +49-228-815-0214 or 0213
Fax: +49-721-151234313

Homepage: www.step-initiative.org
Contact: info@step-initiative.org

3p Consortium for Sustainable Management
Task Force Reuse

Hospeltstr. 32
50825 Cologne / Germany

Tel.: +49-221-170935-0
Fax: +49-221-170935-20

Homepage: www.3p-consortium.org
Contact: info@3p-consortium.org