

Product & Process Innovation's strategies and employment impact

European guidelines related to environmental
impact as driver to product innovation

The RE.LO.A.D. Project Reverse Logistic Appliances Domestic

Domenico Iuliano RELOADER'S President

Why the RE.LO.A.D Project?

In line with E. C. Directives on the Waste of Electrical and Electronic Equipment (WEEE):

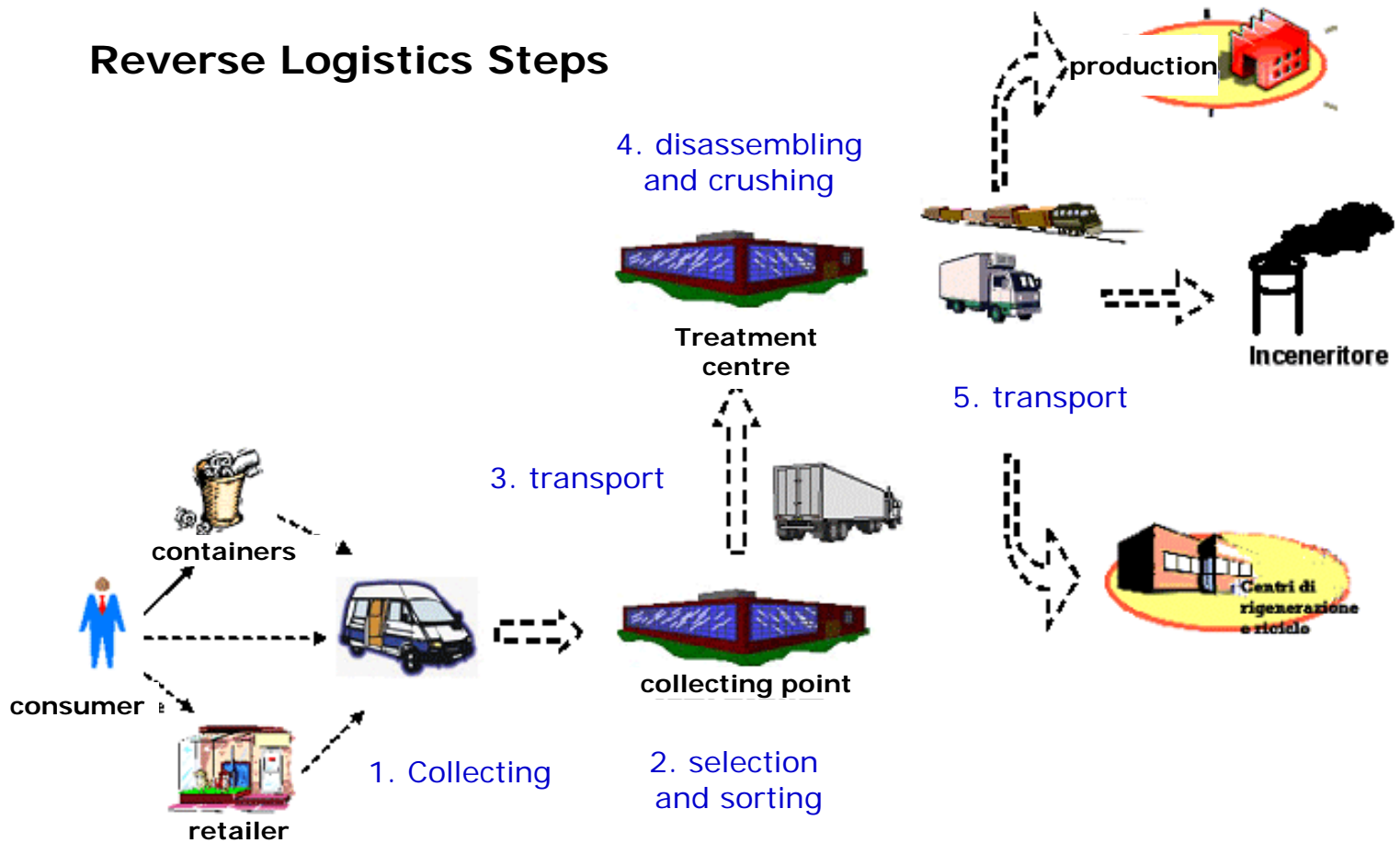
Industry, Logistics and University together to research technologically innovative tools applicable to electrical and electronic goods in initial stage of planning, as well as in final stage (**end of life**) of collecting, treatment and recycling.

3 *Research focuses*

- Integration of Reverse Logistics processes in a network with the support of intelligent informative systems (WEB based)
- A model for the recovery system able to recognize components and materials (RFID)
- Implementation of a logistic platform able to collect and to recovery products (collecting, processing and sorting point)

The Network of Reverse Logistics

Reverse Logistics Steps



Methodological challenges

- Innovation in processes and in application field of knowledge and technologies
- Specific process for each step
- Multidisciplinary and complementary techniques
- Validation of designed models
- Complexity of steps and processes to be harmonized

Expected Results

Carrying out of a pilot plant for the recovery and processing of household machine at end of life

Development of an organization architecture for reverse logistic, by the critical processes analysis and reengineering, using advanced ICT tools: intelligent logistic integrators, RFID tracking systems, DSS

Carrying out of a prototype for an intelligent informatic platform (e-services), by integration and dynamic management of innovative services for each specific business field

Network Integrated Processes

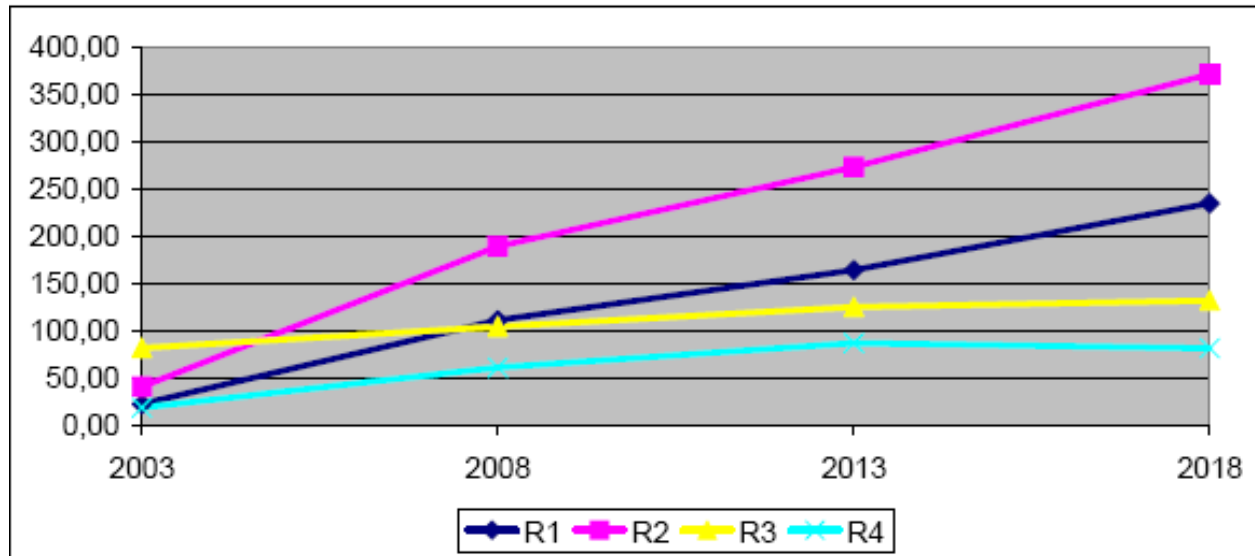
- Information flows creation and management (RFID platform and recognizing systems)
- Transport logistic: planning of
 - Collection
 - In and Out Transportation (Distribution)
- Warehousing logistics (stocking and handling)
- Disassembly and material recovery
- Products and services Marketing
- Customer care

Potential Target

Retrieved material	88%
Disposal of material	12%
Reused material (related to recovery)	20%
Repaired material (related to recovery)	20%
Recycled material	60%
Automation level of the selection phases	100% new generation products 15% actual available products
Replacement components recovered	30%
Relationship between staff cost and disassembling machineries cost	20%
Relationship between recovery/treatment costs and recovered product market value	90%

Tipologie di RAEE		2003	2008	2013	2018
R1	Grandi apparecchi di refrigerazione , frigoriferi , congelatori , apparecchi per il condizionamento , scaldacqua elettrici , ecc.	23,600	111,900	164,600	235,100
R2	Lavatrici , asciugatrici , lavastoviglie , apparecchi per la cottura , stufe elettriche, fomi a microonde , apparecchi elettrici per il riscaldamento , altri grandi apparecchi elettrici , piccoli elettrodomestici ed	41,630	189,600	273,300	371,300
R3	Apparecchiature informatiche per le comunicazioni , apparecchiature di consumo , ecc.	82,369	104,958	125,761	132,403
R4	TV e monitor	19,701	62,000	87,800	82,200
TOTALE		167,300	468,458	651,461	821,003

collected/processed RAEE forecast (ton x 1000) Font: ANIE



Case study

WHIRLPOOL EUROPE

Lingerie 1400

Washing machine model with following characteristics:

- capacity: 42 liters
- 1400 rpm
- 150 involved components
- mostly produced in 2006

Components

Six macro-categories:

- cabinet group;
- washing group;
- door group;
- soap/dispenser group;
- aesthetical components;
- mechanical/electronic/electrical components.

RELOADER

Reverse Logistics And Development of Environment Research

Components



Measurements

COMPONENTS/MATERIALS	WEIGHT (kg)	% INCIDENCE
Ferrous Materials		
Sheet	12,30	16,77
Steel	8,685	11,84
Glass	1,650	2,25
Plastic Materials	8,7	11,86
Concrete	27,400	37,35
Critical Components		
Top	2,500	3,41
Wiring	1,950	2,66
Motor	5,500	7,50

Recoverable Materials

- ❑ Concrete
- ❑ Sheet
- ❑ Steel
- ❑ Plastic Materials
- ❑ Glass
- ❑ Engine
- ❑ Wiring



≈ 90%

Actual and expected data

Middle/Long Time transferability

- The results of the research geographic area: **South of Italy**
- Production of new products at the end of the research: **within a year after the project.**
- Forecast of investment for the production start: **€3.500.000,00**

Actual and expected data

Market forecasts :

- ❑ **Forecast after two year from the end of the research activity**
 - Italian turnover: €3.500.000,00
 - Foreign turnover: there aren't exports
 - Share market acquisition: 11%

- ❑ **Regime forecasts**
 - Italian turnover: € 4.000.000,00
 - Share market acquisition: 13%

- ❑ **Increasing employment: 24 related to the research project + 50 for the economic activities induced (tot. 74)**

RELOADER

Reverse Logistics And Development of Environment Research



The Italian Technological Platform for the Reverse Logistics

Associazione RELOADER - ONLUS

00185 Rome - Viale Carlo Felice, 89

Phone: +39 06 77.25.07.02

Fax: +39 06 70.49.04.79

e-mail: segreteria@reloaderitalia.it

Why a Technological Platform?

“because in Europe the transports is quickly becoming a high technology industry: the research and the innovation will play a crucial role for the following developments”



Keep Europe Moving



**Sustainable mobility for
our continent**

Mid-term review of the European
Commission's 2001 White Paper on
Transport

Currently there are 30 ETP, accessible on the CORDIS site, other ones are in preparation

It is necessary to develop "sophisticated logistic chains" and implement the services of an intelligent logistic integrator.

The ETP (European Technology Platforms) will contribute at large degree to the future structuring of the FP7 and also of several national research programs.

ETP goals

- To identify the thematic priorities in the field of industrial relevance
- To mobilize a great critical mass of european, public and private resources
- To define the SRA (Strategic Research Agenda) programs, able to reach the pre-arranged goal (Visions) that enable Europe to improve one's competitiveness in the global market

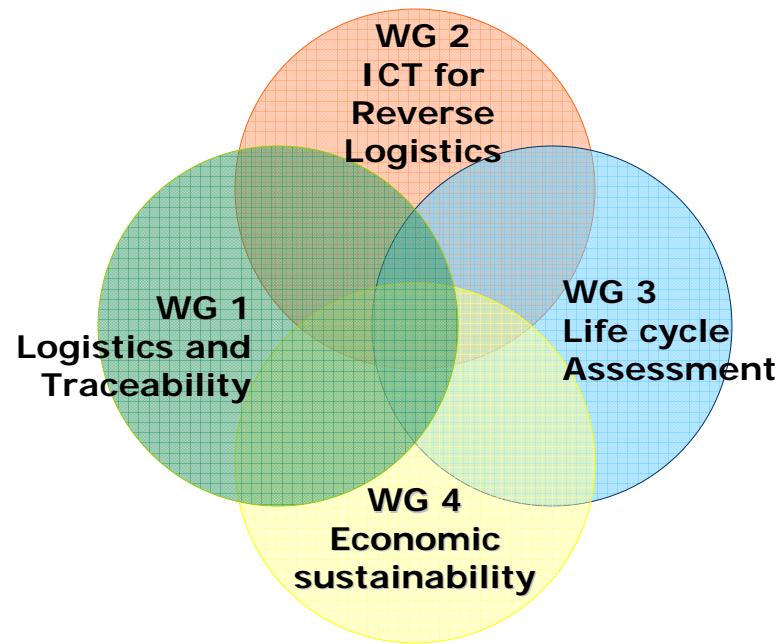
Key Issues

- Virtuous lobby
 - Project incubator
 - Culture field for operating partnership
 - Corporate image
- point of reference for R&S
innovation
environment

Focus Areas

1. WEEE: Waste Electrical and Electronic Equipment white – grey – brown
2. Reutilization of wrappings, packages and cases/display stands for foodstuffs not merchandisable any more: metals and plastic polymers to be new production processes
3. Motorbikes, farming machines and equipments

Working Groups

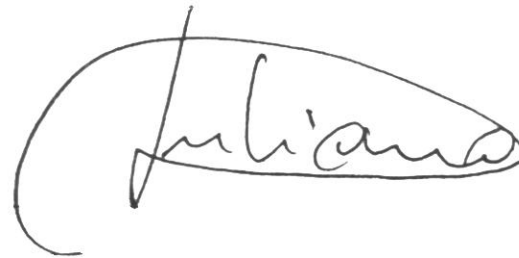


- The frontiers of the D.f.E. (Design for Environment) for the production
- Networks and platforms for the reverse and direct logistics organization
- Web based network: ICT for the Reverse Logistics
- Management of the treatment of end of life products
 - Tracing and tracking: development and mapping of RFID technologies
 - Mobile phone network: new languages and research procedures
 - Monitoring of the materials and vehicle flows – The observatory (DSS – Decision Support System)

RELOADER

REverse **LO**gistics **A**nd **D**evelopment of **E**nvironment **R**esearch

*Thanks
for your attention*

A handwritten signature in black ink that reads "Juliana". The signature is written in a cursive style with a large, sweeping initial 'J'.