Reverse Logistics: Accelerating the Transition Toward the Circular Economy

U.S. Chamber of Commerce Foundation - 2015 Sustainability Forum - May 7, 2015

Katherine O’Dea
Co-Founder & Principal
Circular Economy Strategists
www.cestrategists.com
About Circular Economy Strategists

A mission-driven, and values-based consultancy working to drive transformational change in the global system of commerce by shifting linear business models to circular ones.
About Circular Economy Strategists

We...
• Apply verifiable and rigorous science-based tools
• Develop whole system solutions
• Drive change through entire supply networks
• Take an interdisciplinary approach
• Translate complex scientific concepts into concrete business strategies
• Adhere to a collaborative and cooperative ethic
Reverse logistics is a critical enabler of a circular economy business model. It’s the operational system that allows the loop to be closed.
Reverse Logistics (RL) Is...

The efficient, cost effective flow of materials, in-process inventory, by-products, finished goods and related information from the point of use to the point of origin in order to recapture value.

Refurbishing and remanufacturing activities may also be included in the scope of reverse logistics.
RL Tech Materials Flow

Raw Inputs

Material Processor

Parts/Product Manufacturer

Retailer/Service Provider

By-products

Other Manufacturer

Collection

Adapted from an EMF diagram

(circular economy strategist)
RL Bio Materials Flow

Material Processor

Parts/Product Manufacturer

Retailer/Service Provider

Collection

By-products

Other Manufacturer

Adapted from an EMF diagram
RL Process

Collection

Dispositioning

Customers

Revalorization
Refabricate / Remanufacture / Recycle

Other Industries
Other Markets

circular economy strategists

LANDFILL
Refurbished

Resold

Recycled

Your donations create jobs.

Help keep e-waste out of landfills.

Source: Dell.com/reconnect
Triage of returned Philips products upon arrival at Ryder processing facility

- **Product is Repairable & Resalable**
  - Repair and/or Repackage product for resale
  - Ryder distributes repackaged goods on secondary market

- **Product is Malfunctioning**
  - Disassemble
  - Sort
  - Segregate Like Parts
  - Ryder woks with recycler to ensure environmentally sensitive disposition

Source: Inbound Logistics, June 2011
Towards a circular economy

**Design**
We have a strong track record for using sustainable materials, lightweighting our packaging and ensuring that 100% of our bottles and cans are fully recyclable.

**Factory**

**Raw Materials**
- 6% Renewable materials
- 64% Virgin materials
- 30% Recycled materials

In 2011, we introduced PlantBottle™ — the first-ever fully recyclable PET plastic bottle made partially from plants. The Coca-Cola Company is now looking at how it will make a bottle that is 100% made from plants.

**Recycle**
We use about 30% recycled materials across all our packaging.

**Reprocess**
We’ve invested €12.5 million into two recycling joint ventures in Great Britain and France, increasing the amount of PET reprocessed locally and enabling our bottles to include more PET.

**Consumer**
We’ve carried out research into recycling habits and behaviour change, and we educate and inspire consumers to recycle more often.

**Recover**
75% 3 out of 4 packs are recovered for recycling, via national recovery systems.

25% 1 out of 4 packs is not collected and lost to landfill, or energy from waste.

**Reuse**
7% of our total sales, and 75% of our glass bottle sales, are in reusable packaging.

Packaging can also be recycled into other products including t-shirts, headphones and furniture.

Based on Coca-Cola Enterprises internal data.
From... $8M

Cost Center

To...

$147M

Profit Center

Partnered with 3rd party logistics provider to revamp reverse logistics processes
RL Considerations

- Partnering with a 3\textsuperscript{rd} Party Logistics Provider
- Establishing centralized asset recovery
- Managing recovered inventory sort (triage)
- Developing effective distribution networks
- Ensuring ability to scale
- Maximizing recovery / minimizing system leakage
- Managing costs
- Managing GHG emissions
- Understanding relevant regulations
- Continually monitoring for system disconnects or gaps
- Keeping it simple for the customer (B2B or B2C)
RL Enablers

• Designing for “X”
  – Durability, reusability, disassembly, modularity, upgradeability…

• Identifying industrial symbioses

• Building strong supply chain relationships

• Optimizing distribution nodes

• Optimizing flow of product life cycle data
  – Utilizing the Internet of Things
RL Metrics

- Percent of product recovered
- Percent of product reused or remanufactured
- Percent of components or material recycled
- Percent of material lost to waste/landfill
- Disposition cycle-time
- Per-item handling cost
- Energy use per volume of product processed
Circular Economy Strategists

www.cestrategists.com

Katherine@cestrategists.com
1 404 640 8213