Reusable Packaging for a Sustainable Supply Chain

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President & CEO
Reusable Packaging Association
The Reusable Packaging Association is a non-profit trade organization.

We connect the industry and promote reusable transport packaging systems.

Who We Are

- Raw Material Suppliers
- Repair and Recycling Services
- Education and Advocacy Groups
- Technology and Labeling Services

Product Suppliers: Design and Manufacture
- Reverse Logistics
- Poolers

Primary (End) Users: Closed and Open Loops
- Transportation and Logistics Providers
- Parts, Equipment and Automation Suppliers

What We Do

- Validate Impacts
- Expand Markets
- Spur Innovation
What is reusable “transport” packaging?
Reusable packaging is about the system, not just the product
Reusable packaging for a sustainable supply chain

Supply Chain Sustainability:
“the management of environmental, social and economic impacts, and the encouragement of good governance practices, throughout the lifecycles of goods and services.”

Objective: to create, protect and grow long-term value

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<thead>
<tr>
<th>Environmental</th>
<th>Social</th>
<th>Economic</th>
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<tbody>
<tr>
<td>Planet</td>
<td>People</td>
<td>Profit</td>
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(3Ps “Triple Bottom Line”)
# Packaging impacts on a sustainable supply chain

<table>
<thead>
<tr>
<th>Environmental</th>
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<tbody>
<tr>
<td>Natural resources</td>
<td>Employment</td>
<td>Raw material sourcing</td>
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<tr>
<td>Mining and deforestation</td>
<td>Wages and benefits</td>
<td>Manufacturing costs</td>
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<td>Climate change</td>
<td>Worker health and safety</td>
<td>Transportation</td>
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<td>Atmospheric emissions</td>
<td>Ergonomics</td>
<td>Storage and inventory</td>
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<tr>
<td>Energy consumption</td>
<td>Training and best practices</td>
<td>Packing time and labor</td>
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<td>Water consumption</td>
<td>Weight limitations</td>
<td>Pallet unitization</td>
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<td>Solid and hazardous waste</td>
<td>Equipment performance</td>
<td>Cube utilization</td>
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<td></td>
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<td>Product protection/quality</td>
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<td>Recovery and recycling</td>
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Changing models for environment, social and economic sustainability

<table>
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<tr>
<th>Linear Economy</th>
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<tbody>
<tr>
<td>“Take, Make, Waste” system fueled by consumption</td>
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<td>Turns natural resources into products for sale through a series of value-adding steps</td>
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<td>Ownership and liability for risk and waste is passed downstream</td>
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<table>
<thead>
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<th>Circular Economy</th>
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<tbody>
<tr>
<td>Reuse/Repair/Recycle system fueled by restoration</td>
</tr>
<tr>
<td>Keep products and materials at highest utility and value</td>
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<tr>
<td>Reprocessing activities create jobs while reducing energy, resource needs and waste</td>
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“Packaging exemplifies a linear system of production and waste, even as companies ramp up efforts to increase the recyclability and actual recycling of packaging materials.”


“For a sustainable world, the transition from a linear to a circular economy is essential.”

- Frans van Houten, CEO and Chairman, Philips
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Linear Economy

Resources

Raw Materials ➔ Production ➔ Distribution ➔ Consumption ➔ Waste

Energy ➔ Landfill ➔ Recycle

Circular Economy

Resources

Production ➔ Distribution ➔ Consumption ➔ Recovery

Recondition ➔ Reposition ➔ Repair

Recycle
SOLVE FOR X.

Linear vs Circular

Extract Raw Materials

Manufacture

Distribution

User

Landfill

One-Way, Single-Use

Reusable Packaging

Sources: Adapted from Ellen MacArthur Foundation; Philips
Reuse versus recycling

Waste Management Hierarchy

Source Reduction & Reuse

Preventing Waste

Managing Waste

Recycling & Composting

Energy Recovery

Treatment & Disposal
“...by returning a product to its constituent materials you lose all the energy, labour and expense that went into creating it in the first place.”

Source: sustainablebrands.com
Reuse hits sustainability trifecta

**Environmental**: lower manufacturing emissions and energy use

**Economic**: reusable system achieves supply chain efficiencies

**Social**: labor-friendly design of products and systems

**Environmental**: elimination of waste

**Social**: consumers prefer “reusable and repurposable packaging”*

**Economic**: new economies created in the renewal of products and materials

**Social**: job growth

**Environmental**: reuse conserves raw materials

**Circular Economy**

*63% of US consumers believing this to be a “key purchasing driver.” Mintel, Global Packaging Tends, 2016
Circular benefits on the environment, economy and workforce

“A study of seven European nations found that a shift to a circular economy would reduce each nation’s greenhouse-gas emissions by up to 70% and grow its workforce by about 4%.”
- NATURE, Walter Stahel, March 24, 2016

Over US$1 trillion a year could be generated for the global economy by 2025 and 100,000 new jobs created within the next five years if companies focused on building circular supply chains to increase the rate of recycling, reuse and remanufacture.
- “Towards the Circular Economy: Accelerating the scale-up across global supply chains,” World Economic Forum, January 2014

…adopting circular economy principles, Europe can take advantage of the impending technology revolution to create a net benefit of €1.8 trillion by 2030, or €0.9 trillion more than in the current linear development path.

- European GDP could increase as much as 11% by 2030 compared with 4% in current development.

“Across the studies, however, we conclude that the circular economy has the potential to become a trillion-dollar opportunity globally in the near future.”
Essentials for reusable packaging in a circular economy

- Systems approach
- Maximum uses
- Asset management
- End-of-life renewal
- Performance metrics
  - Cycles, Turns, Dwell

- Durability
- Lifespan
- Fit for purposes
- Optimization
- Part repair
- Return process

- Suppliers and users
- 3rd-party providers
- Closed & open loops
- Internal teamwork
- Data sharing
- Standardization

- Retrieval
- Reconditioning
- Repositioning
- Consolidation
- Transportation
- Pool speed

Source: Adapted from Philips.com; Reusable Packaging Association
Technology is the real enabler for reusable packaging in a circular economy

**Business Model**
- Product tracking
- Supply chain visibility
- Inventory management
- Predictive analyses
- Service-based models

**Product Design**
- Material science
- 3D printing/speed to market
- Sensor functions
- Connected/intelligent assets

**Collaboration**
- Networks
- Big data analytics
- Cloud computing/information access
- Sharing platforms

**Reverse Logistics**
- Internet of Things (IoT)
- RFID

**Consolidation hubs**
- Fleet efficiency
- Route optimization
- Autonomous vehicles

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**Fleet efficiency**
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- Autonomous vehicles
Transitioning to a sustainable circular supply chain...and beyond?

- Linear Economy: Transactional
- Circular Economy: Transformative
- Hyperconnected Economy?: Transcendent

Reusable packaging for a sustainable supply chain

- The reuse of transport packaging advances environmental, social and economic sustainability
- Reusable packaging is aligned with circular economy principles
- Recycling is great, but a system of reuse is better for sustainable materials management
- Technology advancements are taking the reusable packaging opportunity to new levels
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Q&A