

***SOLVE FOR X.***

# ***Reusable Packaging for a Sustainable Supply Chain***

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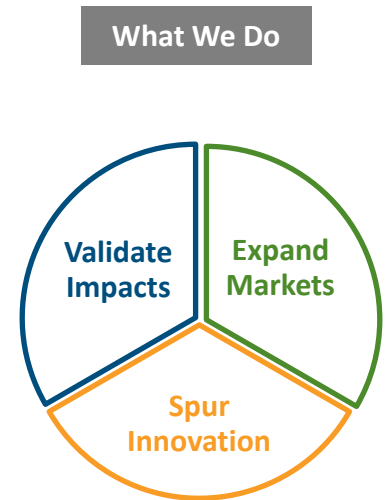
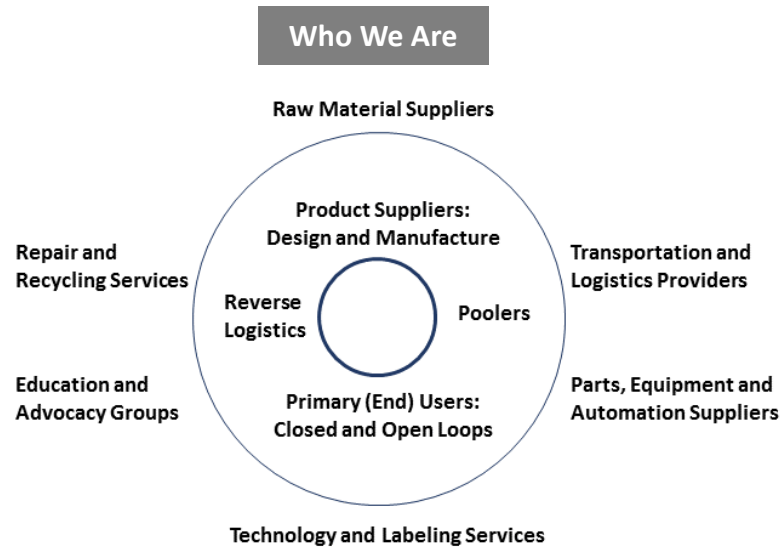


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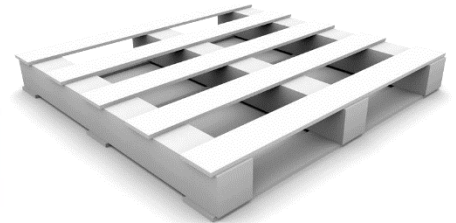
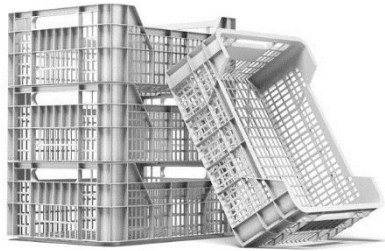
The Reusable Packaging Association is a non-profit trade organization

We connect the industry and promote reusable transport packaging systems



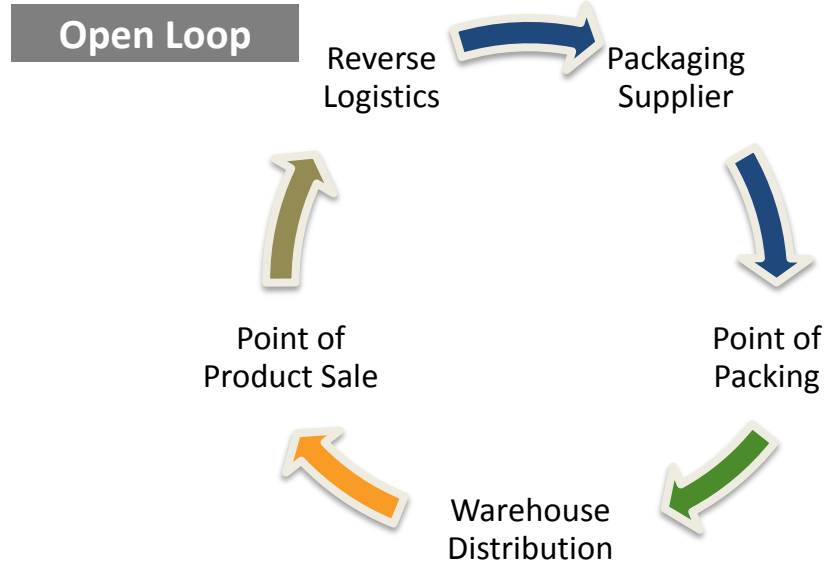
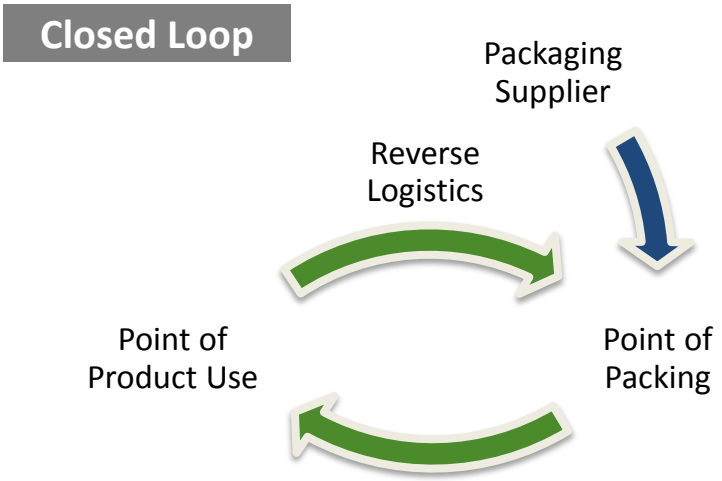
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What is reusable “transport” packaging?



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Reusable packaging is about the system, not just the product



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## Reusable packaging for a sustainable supply chain



**United Nations**  
Global Compact

### 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

Environmental

Social

Economic

Planet

People

Profit

(3Ps “Triple Bottom Line”)

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## Packaging impacts on a sustainable supply chain

### Environmental

- Natural resources
- Mining and deforestation
- Climate change
- Atmospheric emissions
- Energy consumption
- Water consumption
- Solid and hazardous waste

### Social

- Employment
- Wages and benefits
- Worker health and safety
- Ergonomics
- Training and best practices
- Weight limitations
- Equipment performance

### Economic

- Raw material sourcing
- Manufacturing costs
- Transportation
- Storage and inventory
- Packing time and labor
- Pallet unitization
- Cube utilization
- Product protection/quality
- Recovery and recycling

## Changing models for environment, social and economic sustainability

### Linear Economy

- “Take, Make, Waste” system fueled by consumption
- Turns natural resources into products for sale through a series of value-adding steps
- Ownership and liability for risk and waste is passed downstream

“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.”

- GreenBiz, “How packaging plays in the circular economy,” K. O’Dea, March 2015

### Circular Economy

- Reuse/Repair/Recycle system fueled by restoration
- Keep products and materials at highest utility and value
- Reprocessing activities create jobs while reducing energy, resource needs and waste

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

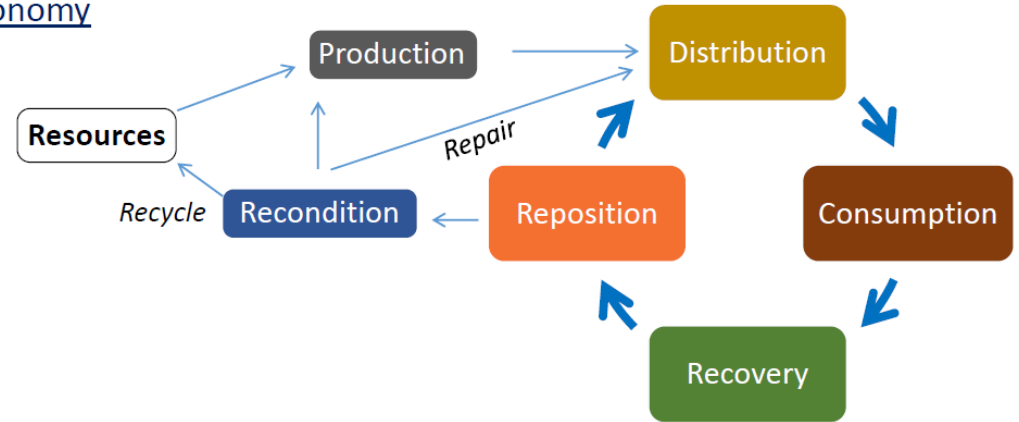
- Frans van Houten, CEO and Chairman, Philips

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## Linear Economy

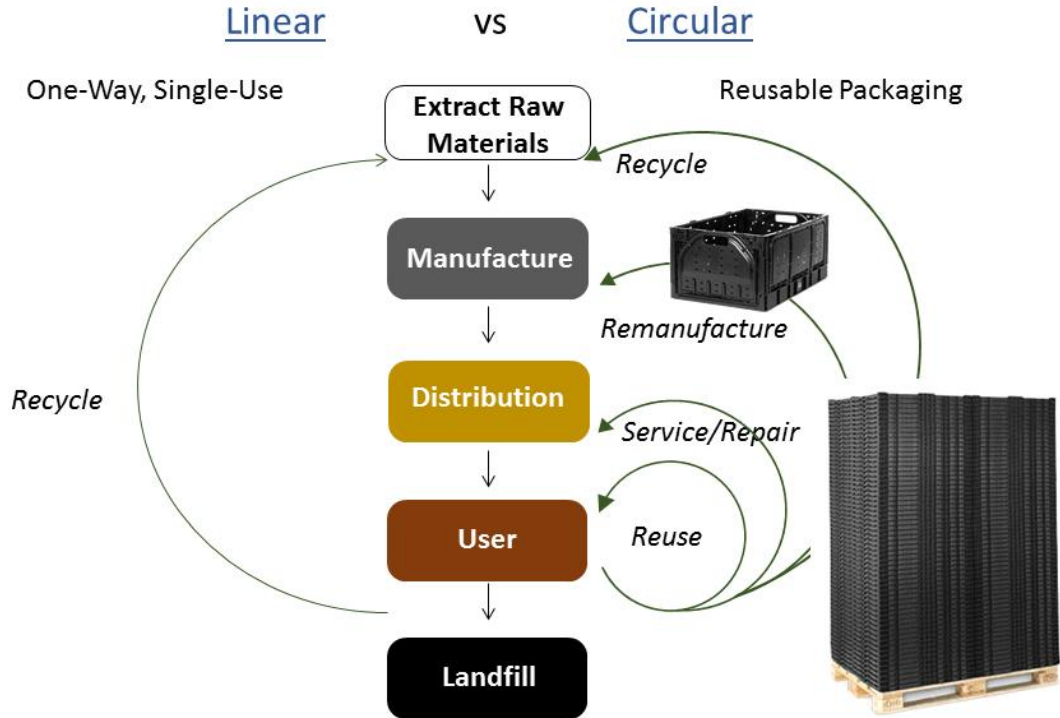


## Circular Economy



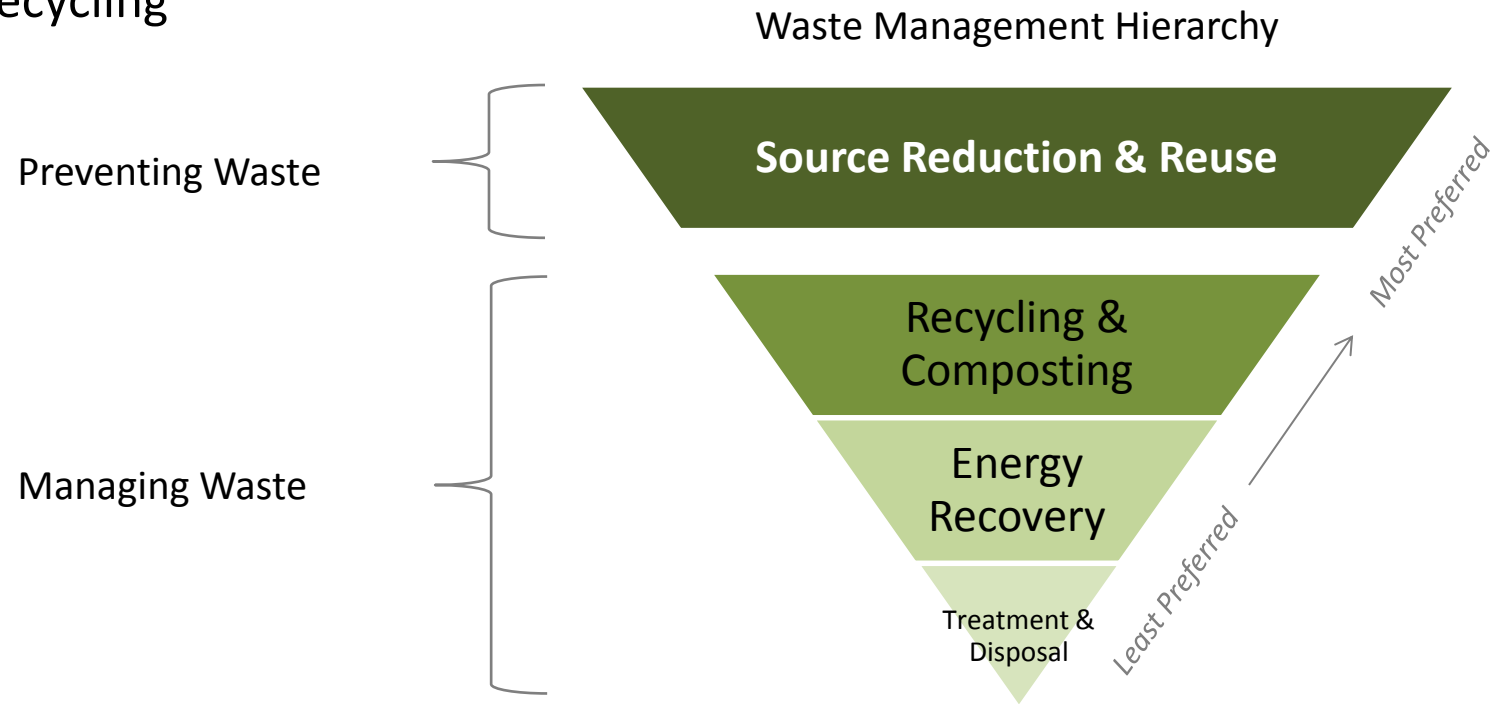


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## Reuse versus recycling



## Reuse versus recycling

### Why Recycling Will Be a Last Resort in a Truly Circular Economy

by [Joe Iles \(/user/87933\)](#)

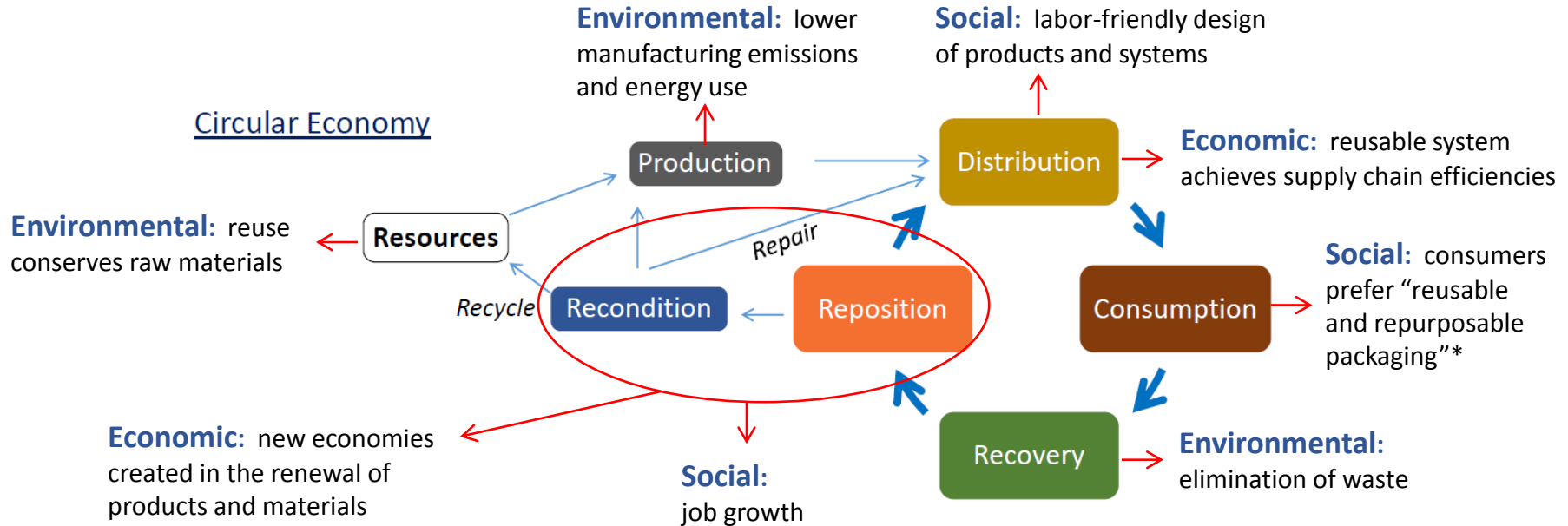
May 5, 2016



“...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.”

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## Reuse hits sustainability trifecta



## 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.

- “Growth Within: a circular economy vision for a competitive Europe”, Ellen MacArthur Foundation, McKinsey & Co., June 2015.

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

- Accenture, “Circular Advantage,” 2014

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## Essentials for reusable packaging in a circular economy

Adapted from Philips' "Four Enablers for a Circular Economy"



Business Model



Product Design



Collaboration



Reverse Logistics

Reusable Packaging Essentials

- 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
- 3<sup>rd</sup>-party providers
- Closed & open loops
- Internal teamwork
- Data sharing
- Standardization

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

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## 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

} Internet of Things (IoT)  
RFID



Collaboration

Networks  
Big data analytics  
Cloud computing/information access  
Sharing platforms



Product Design

Material science  
3D printing/speed to market  
Sensor functions  
Connected/intelligent assets



Reverse Logistics

Consolidation hubs  
Fleet efficiency  
Route optimization  
Autonomous vehicles

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Transitioning to a sustainable circular supply chain...and beyond?

Linear Economy



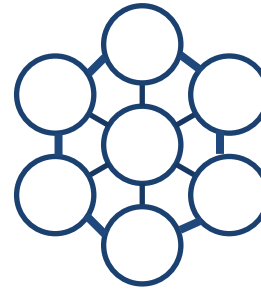
Transactional

Circular Economy



Transformative

Hyperconnected  
Economy?



Transcendent



**The Physical Internet  
(PI, π)**

The Physical Internet is an open global logistics system founded on physical, digital and operational interconnectivity through encapsulation, interfaces and protocols



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## 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



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