Reusable Packaging and the Circular Solution

Tim Debus
President & CEO
Reusable Packaging Association

November 7, 2016
Reusable Packaging Learning Center
Pack Expo International

In response to **resource constraints**, **excessive waste** & **environmental pressures**,

A reusable packaging system is already a circular economy solution.

Global Conditions: Demand > Supply = Unsustainable

1.6 Earths Needed To Sustain Demand on Natural Resources

"We use more ecological resources and services than nature can regenerate through overfishing, overharvesting forests and emitting more carbon dioxide into the atmosphere than forests can sequester."

overshootday.org

Global Action

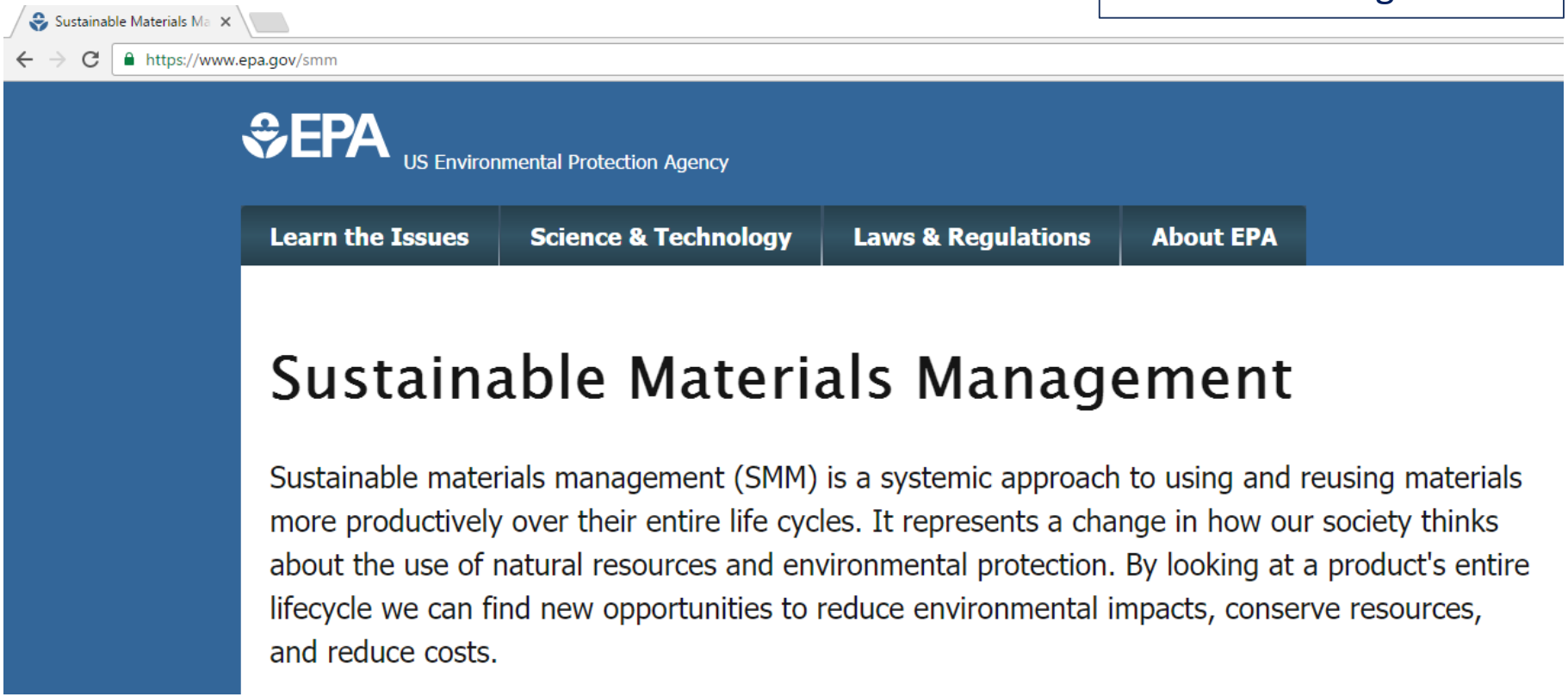
September 2015

December 2015

U.S. Action

Transition from waste management to Sustainable Materials Management (SMM).

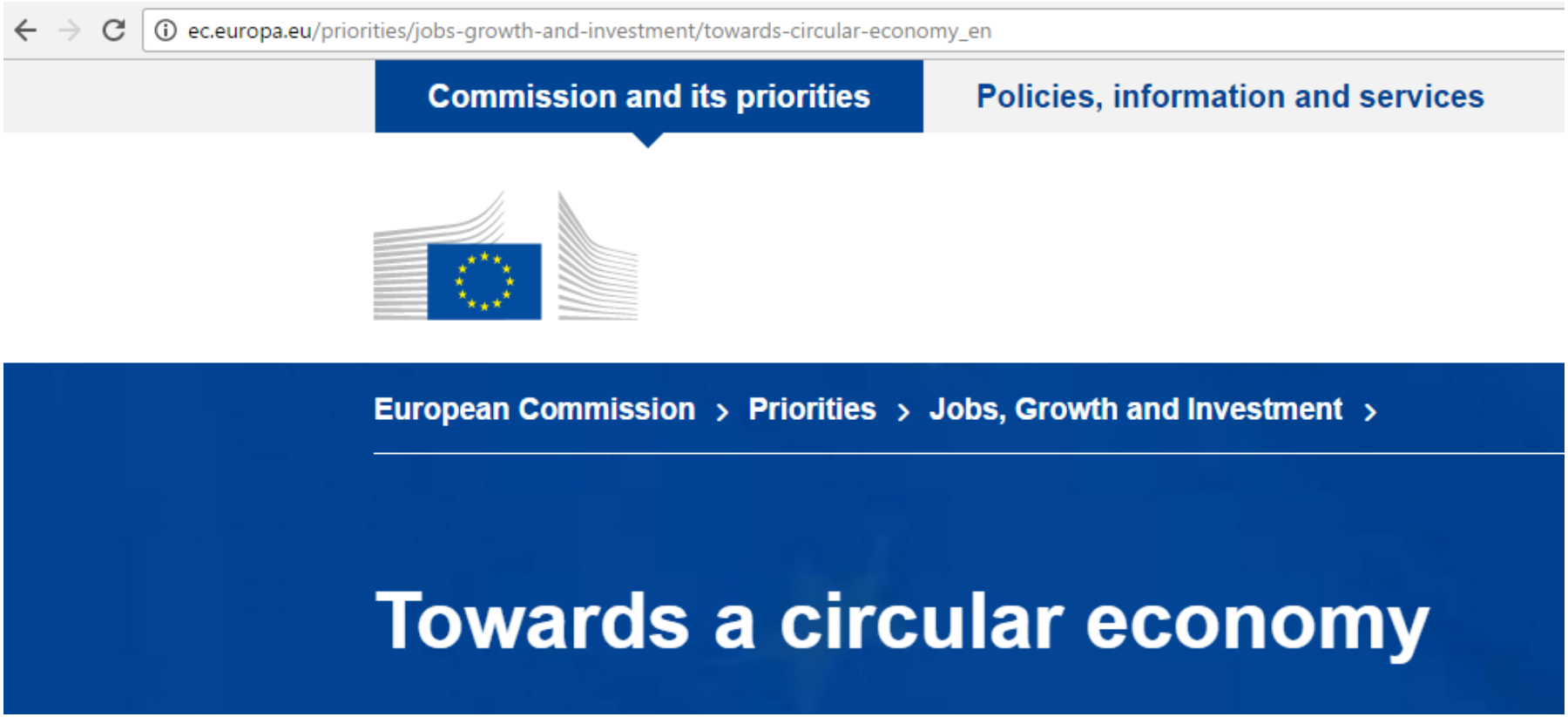
42% of U.S. greenhouse gas emissions are due to materials management



EU Action

European Commission legislative proposals on waste to stimulate economic growth

Shift to circular economy would reduce GHG emissions by up to 70% and grow workforce by 4%



China Action

"For the past decade, China has led the world in promoting the recirculation of waste materials through setting targets and adopting policies, financial measures and legislation. The ultimate goal is a 'circular economy'…"

- Nature, J Matthews & H. Tan, "Circular Economy: Lessons from China," March 2016

Businesses Going Circular

"The circular economy, marked by creative innovations and a systems-level approach, can be used to tackle many of the world's most complex environmental and social challenges."

Sustainability Update 2015 - 2016

"Our long-term vision is to leverage our significant scale and resources to contribute meaningfully to the 'circular economy'"

"There is no better example of how Google is implementing circular economy strategy at scale than how we manage the hardware inside our data centers."

"We want to move to a circular economy, enabling more packaging to either remain in loops or have the best possible opportunity to be recycled."

Industrial Economies

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 to the buyer

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

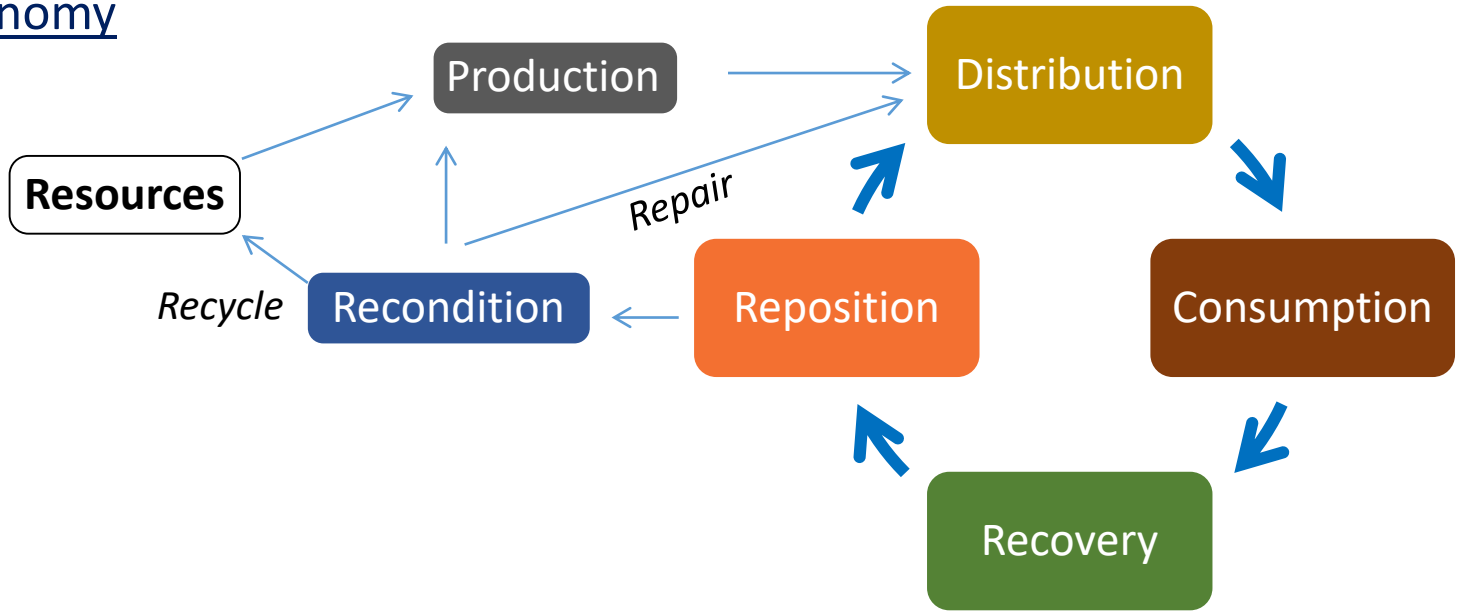
Shared Economy

- Borrow or rent assets owned by someone else; resource sharing
- "Collaborative consumption"
- Allow customers to access goods when needed

Linear vs Circular

Linear Economy

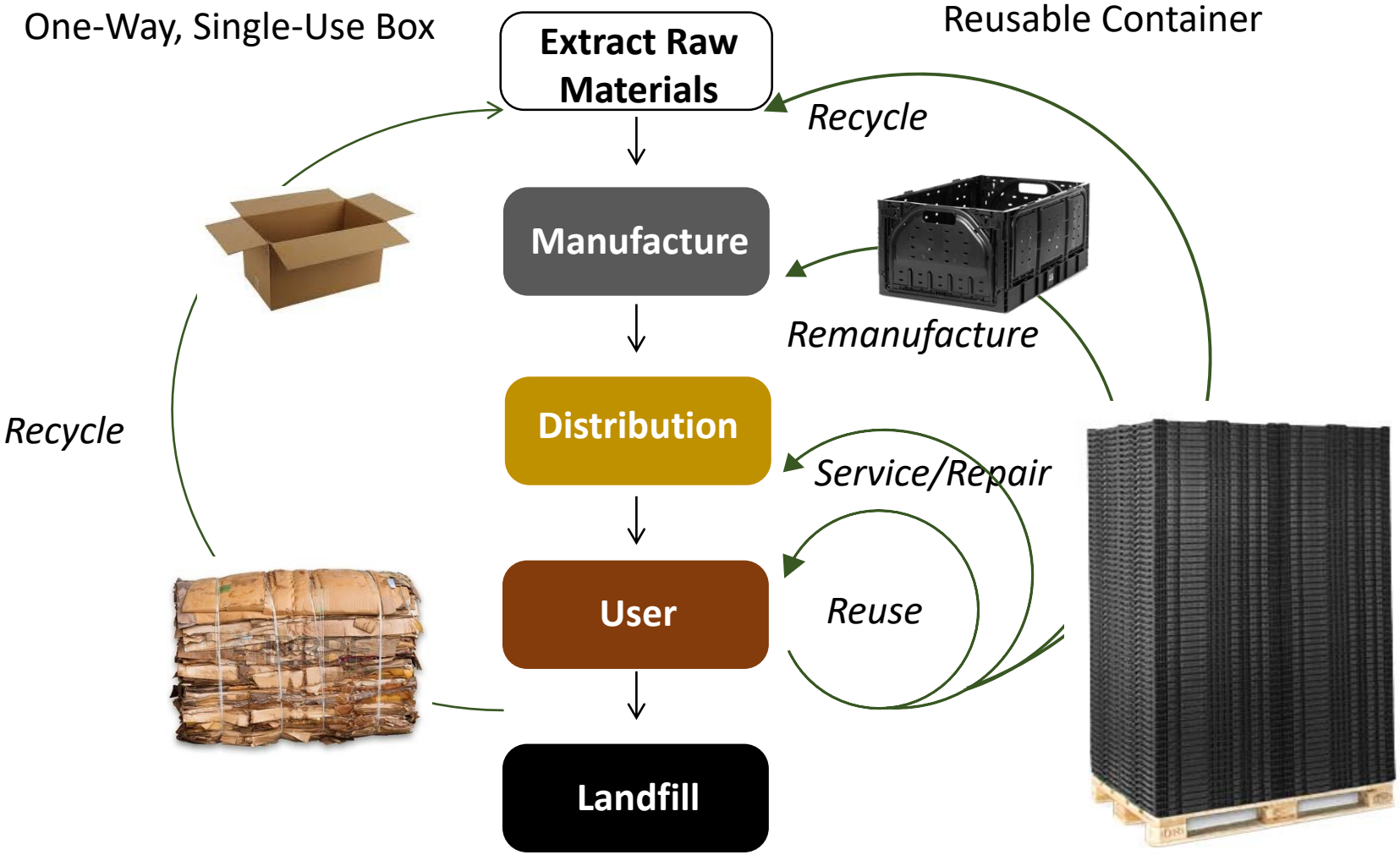
Circular Economy



Linear vs Circular

One-Way, Single-Use Box

Reusable Container



Sources: adapted from Ellen MacArthur Foundation; Philips

Recycling vs Reuse

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."

"Design is the first signal of human intention"
- William McDonough

Source: sustainablebrands.com

Waste By Definition

Article Talk Read Edit View history Search Wikip

Waste

From Wikipedia, the free encyclopedia

This article is about material waste. For the medical condition, see Wasting. For wasteful government spending, see governm
Waste (disambiguation).

Waste and ***wastes*** are unwanted or unusable materials. Waste is any substance which is discarded after primary use, or it is worthless, defective and of no use.

Examples include municipal solid waste (household trash/refuse), hazardous waste, wastewater (such as sewage, which contains bodily wastes (feces and urine) and surface runoff), radioactive waste, and others.

Contents [hide]

1 Definitions

Packaging Is Really About The Whole System

"Enablers" for a Circular System

PHILIPS

Sustainability

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

Frans van Houten
CEO and Chairman, Philips

Philips' "Four Enablers for a Circular Economy"

business models

design

collaboration

reverse logistics

Reusable Packaging

- Systems approach
- Maximum uses
- End-of-life renewal
- Performance Metrics
  - Cycles, Turns, Dwell

- Durability
- Lifespan
- Compatibilities
- Part repair
- Return process

- Suppliers and users
- 3rd-party providers
- Closed & open loops
- Internal groups
- Data Sharing

- Retrieval
- Reconditioning
- Repositioning
- Consolidation
- Transportation

Source: Philips.com; Reusable Packaging Association

Technology a Performance Enabler

"Information and industrial technologies are now coming online or being deployed at scale, which support closing the reverse loops. These advances allow better tracking of materials, more efficient collaboration and knowledge sharing, and improved forward and reverse logistics setups."

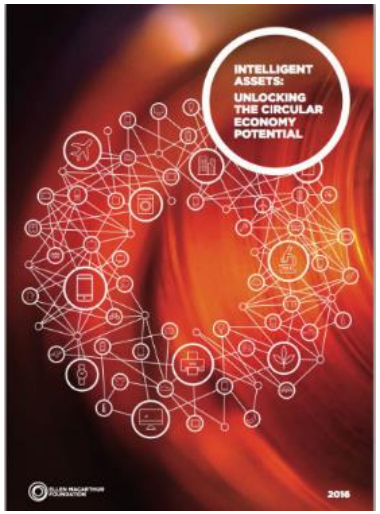
Sources: World Economic Forum; Ellen MacArthur Foundation

Six Technology Megatrends

People and the Internet	• Connectivity
Computing, Communications and Storage Everywhere	• Access
The Internet of Things	• Sensors
Artificial Intelligence and Big Data	• Robotics
The Sharing Economy and Distributed Trust	• Networks
The Digitization of Matter	• 3D Printing

Sources: World Economic Forum

Intelligent Packaging, Smart Reuse Cycles



"The seamless integration of the physical and digital worlds through networked sensors, actuators, embedded hardware and software will change industrial models."

Technology Applied to Reusable Packaging

Location

- Operational performance
- Tracking
- Resource recapture

Condition

- Physical performance
- Maintenance/repair
- Use patterns

Availability

- Cycle performance
- Supply/demand
- Inventory management

Sources: Ellen MacArthur Foundation; Reusable Packaging Association

A More Circular Future with Reusable Packaging

- Product design prioritizing value retention and serviceability.
- Performance for whole systems solutions.
- Greater collaborations going from individual transactions to managed relationships.
- Reverse logistics specialization.
- Visibility of assets and inventories; big data utilization.
- Equipment automation for speed, accuracy and labor efficiency.
- Targeted waste reduction initiatives, such as food.
- Urban-focused asset pools; local closed loops.

A More Circular Future with Reusable Packaging