Use Reusables

Greening the Packaging Most People Never See

February 13, 2013

Santa Clara University – Santa Clara, CA

STOPWASTE.ORG
Reducing the Waste Stream for Alameda County

REUSABLE PACKAGING ASSOCIATION

Climate Showcase Communities
Local Climate and Energy Program

Top 5 Materials Landfilled from Commercial Sector

1. **Food Waste**
2. **Other Paper**
3. **Uncoated Cardboard** ***Boxes***

4. **Unpainted Wood** ***Pallets***

5. **Film Plastics** ***Stretch Wrap***

The Use Reusables Campaign

- Helping businesses convert to more sustainable reusable alternatives.

- Reducing greenhouse gas (GHG) emissions and solid waste associated with one-time and limited-use transport packaging materials:
  - Production
  - Use
  - Disposal

Made Possible by…

Alameda County Waste Management Authority and Recycling Board
www.stopwaste.org

EPA Climate Showcase Communities Grant

- Supports national expansion of Use Reusables educational workshops, free tools and online resources

www.epa.gov/statelocalclimate/local/showcase/

The RPA – Trade association

- Promotes the value and expansion of reusable packaging systems
- 52 member companies

(Manufacturers, End Users, Technology Providers and Service Providers)

How StopWaste can Help

- Training Opportunities – like today's workshop
- Facilitate Vendor/Supplier Conversation
- Logistics Assistance
- Financial Assistance
- Become a model case study

Benefits of Reusables

- Save your company money
- Improve efficiency
- Good corporate citizenship & sustainability
- Lasting change: Best Practice

Additional Benefits

- Product protection
- Reduced waste costs
- Lower materials costs over time
- Improved worker safety & ergonomics
- Longer useful life of packaging

Our Workshop Goal Today

- Introduce reusable transport packaging
- Explore benefits of reuse in the supply chain
- Provide information and resources
- Review the next steps
- Offer free, one-on-one consultation with a Reusables expert
- Answer your questions

Workshop Agenda

PART I – Presentation, 9:00 – 11:30

Intro to Reusables

- Reusables in Action

  ***EMC Corp. Case Study – Ali Sholer**

- Exploring the Benefits
- Attributes of Good Reusables Opportunities

  ***Kaiser Permanente Case Study – Nicla Sinnott**

11:30 – 12:00: Break/Lunch

Workshop Agenda

PART 2 – Panel Discussion, Noon – 1:00 p.m.

Panelists:

Doug Heywood – Owens & Minor

Supply Logistics Partner for Stanford University Medical Center

Dean Mayes – Finelite

Director of Manufacturing

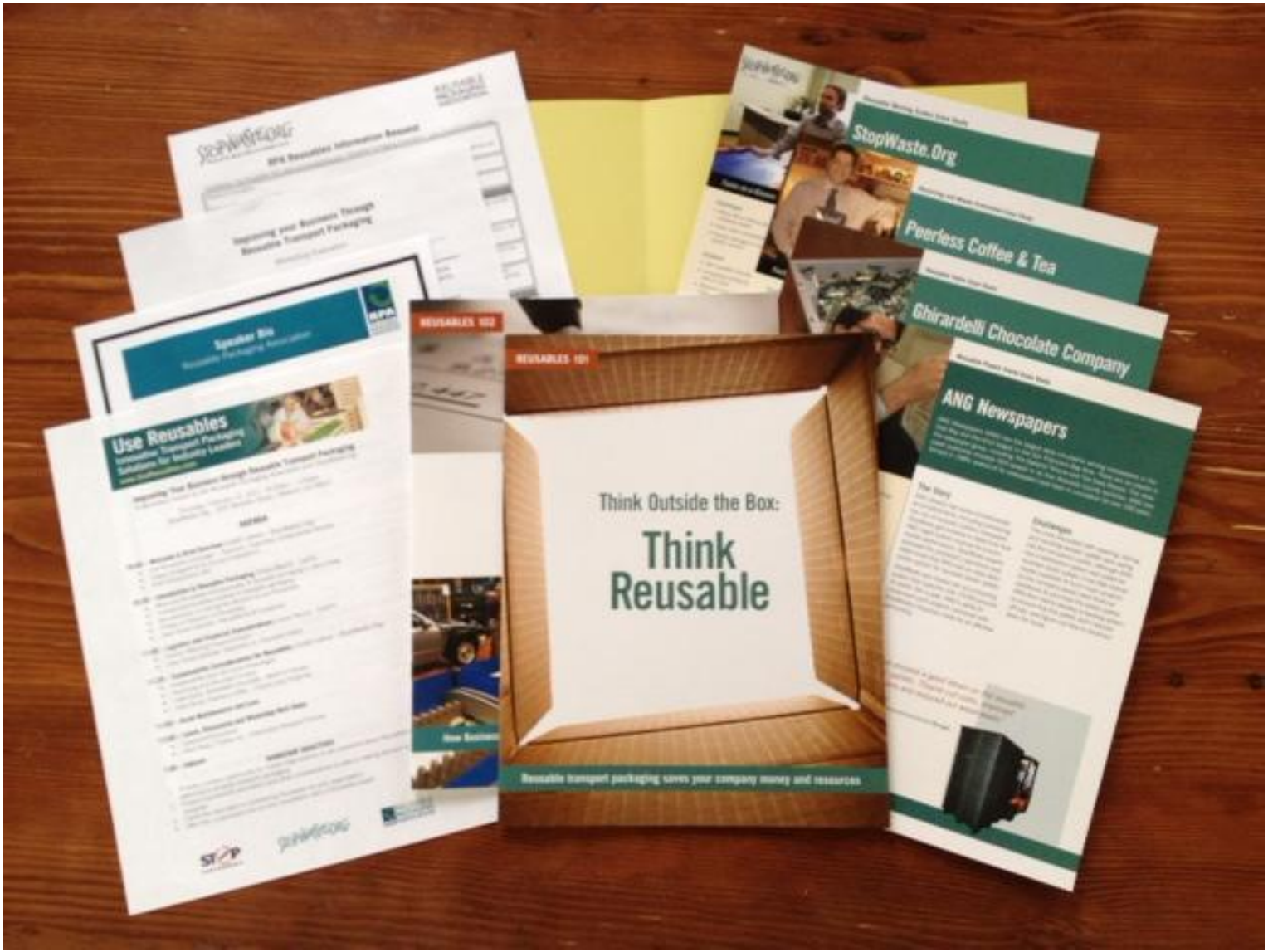
Nancy Parmer – UPS

Senior Director of Sustainability

Post-Workshop:

One-on-one with a Reusables Team Member

Workshop Materials



Reusables are Not:

- Single use
- Limited use

Reusables are:

Merriam Webster defines Reusable as:

re·us·able *adj* \rē-ˋyü-zə-bəl***:** capable of being used again or repeatedly

Reusable Packaging is comprised of pallets, containers, wraps, bands and dunnage designed for reuse within a supply chain

RPA Definition of Reusable Packaging Product or System

- Typically never disposed of by the end user;
- Used to move components, finished products or raw materials;
- Durable construction such that it will function in its original condition:
  - for multiple trips,
  - in all weather conditions,
  - under maximum capacity load conditions,
  - without product failure;
- Lifetime is measured in years; and
- Qualifies as source reduction

Opportunistic vs. Planned Reuse

Everyday Reusables in Action

Other Reusables in Action

Reusable Pallet Wrap – Closed Loop Distribution

Planet Organics, Food & Beverage Manufacturer

- Replaced disposable stretch wrap with reusable pallet wraps.
- Reduced stress and strain from wrapping dozens of pallets a day by hand.
- Avoided time and cost required to dispose of stretch wrap.

Benefit: Lower material costs; eliminated expendable packaging costs

Other Reusables in Action

Reusable Bands and Pallets **Closed Loop Distribution**

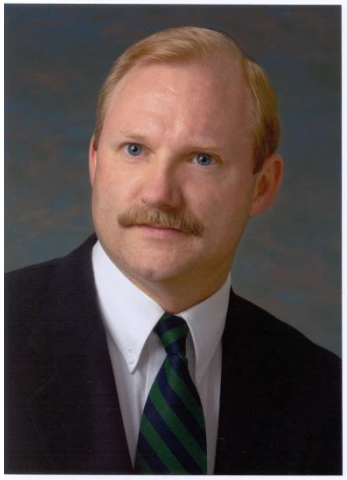
US Foods, San Francisco Division

- Reusable bands secure pallet loads instead of stretch wrap.
- Plastic film waste reduced by 50 tons/yr = $19,200 savings/yr

Benefit: Lower material costs – reduce waste costs

Questions before we move on?

Our Next Speaker



Eric Fredrickson

President, Thor Consulting

Email: Thorcrate@gmail.com

30 Years of experience in Reusable Packaging across all industry sectors.

Which companies benefit from reusables?

Many Benefits of Reusables

Financial

Environmental

Health &Safety

Financial Benefits

Revenue Enhancement

- Merchandising at Store Level
- Increase brand loyalty – a bond with customers

Reusables Benefits in Action

Case Study: EMC's BKube Project

- IT storage hardware manufacturer
- Products shipped to customers around the world from facilities in the US, Ireland, Brazil & China
- Reduced cardboard waste by 160,000 lbs/year

Welcome, Ali Sholer – EMC

Financial Benefits

Revenue Enhancement

- Merchandising at Store Level
- Increase brand loyalty – a bond with customers

Capital Utilization – Lower Materials Cost over time

- Excellent ROI on Reusables investment
- Pooling/Rental of Reusables – outsource CapEx

Reusables Benefits in Action

ANG Newspapers (Now Bay Area Newspaper Group – Mercury News)

- Transitioned to reusable plastic pallets (pooled system)
- Prevents 37 tons of wood-waste/year
- Cut labor costs by $46,000
- Color coding facilitates batch identification for accurate delivery

"We've enjoyed a good return on the reusable plastic pallets. They've cut costs, improved operations and reduced our wood-waste."

SAM LOVATO, ANG Property and Telecommunications Manager

Benefit: Excellent Return on Investment

Reusables Benefits in Action

Plastic Pallets for Beverage Distribution – Open Loop

PepsiCo's Gatorade Plant

- Eliminated product loss, ~100s of cases a day, from full pallets of product tipping overdue to inconsistent dimensions or missing boards
- Plastic pallet is 25 lbs lighter, resulted in transportation savings

Benefit: Reduced product damage and Reduced total freight cost

Financial Benefits

Revenue Enhancement

- Merchandising at Store Level
- Increase brand loyalty – a bond with customers

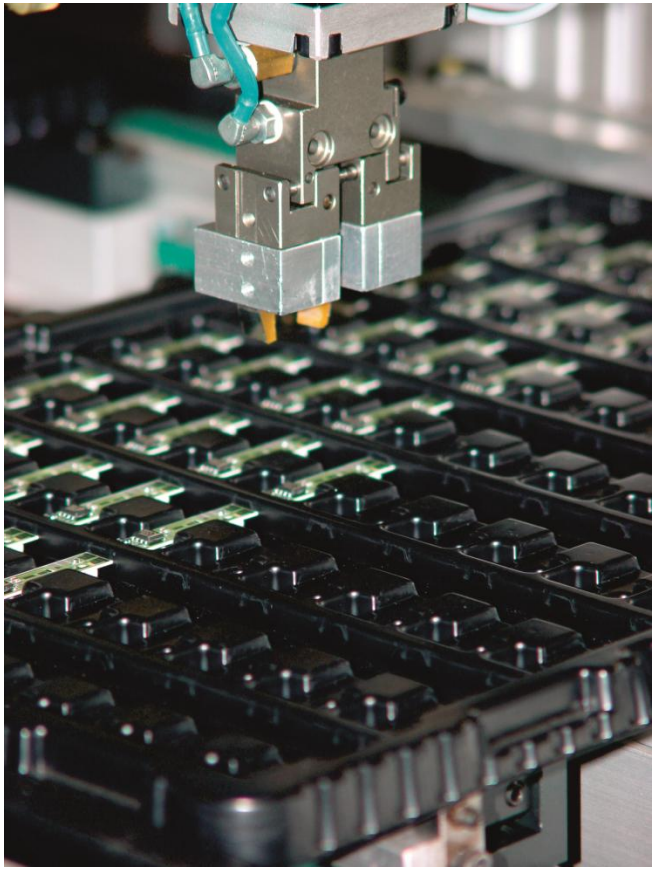
Capital Utilization

- Excellent ROI on Reusables investment.
- Pooling/Rental of Reusables – outsource CapEx

Operating Expense Reduction

- Eliminate expendable packaging expense
- Reduce waste costs
- Reduced product damage or spoilage
- Reduced labor and total freight cost.

Reusables Benefits In Action



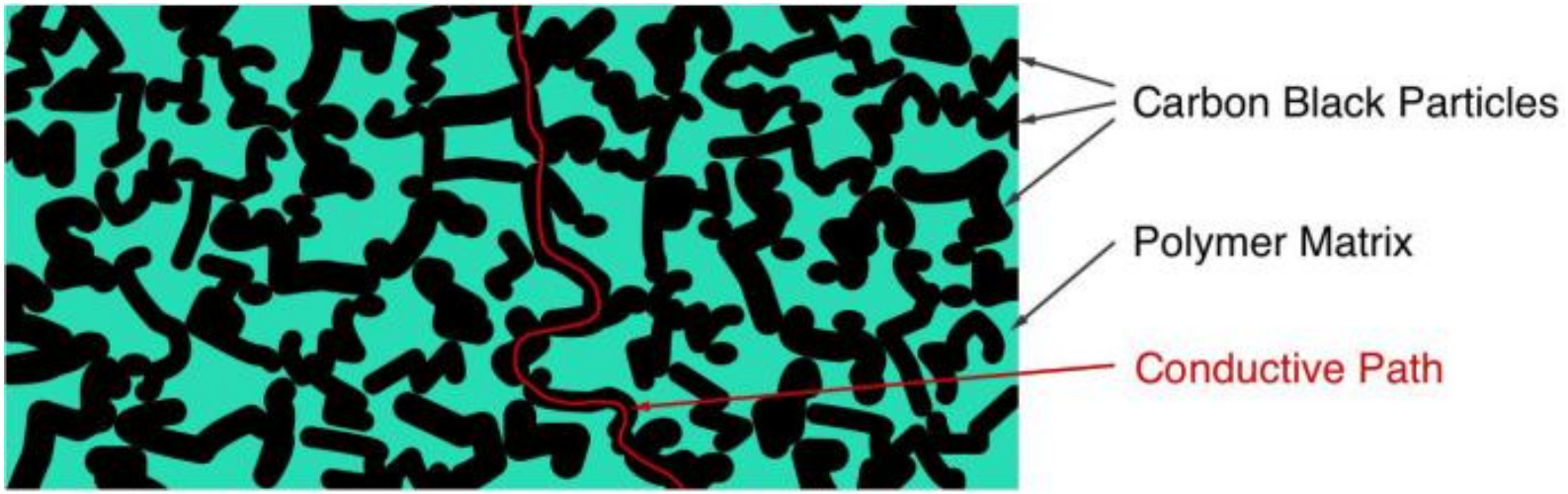
Electro-Static Discharge (ESD)
Reusable Packaging for Electronics

- ESD reusables handle & transport sensitive electronics like circuit boards.
- Replace single use plastic trays in anti-stat bags and corrugated boxes.
  - Excess handling labor
  - High packaging cost
  - High packaging waste burden
  - Increased risk of component damage.
- ESD Reusable packaging can:
  - Generate ROI by eliminating packaging
  - Eliminate packaging waste
  - Reduce handling labor
  - Reduce damage to valuable components

Reusables Benefits In Action

ESD Reusable Packaging for Electronics - Material Selection

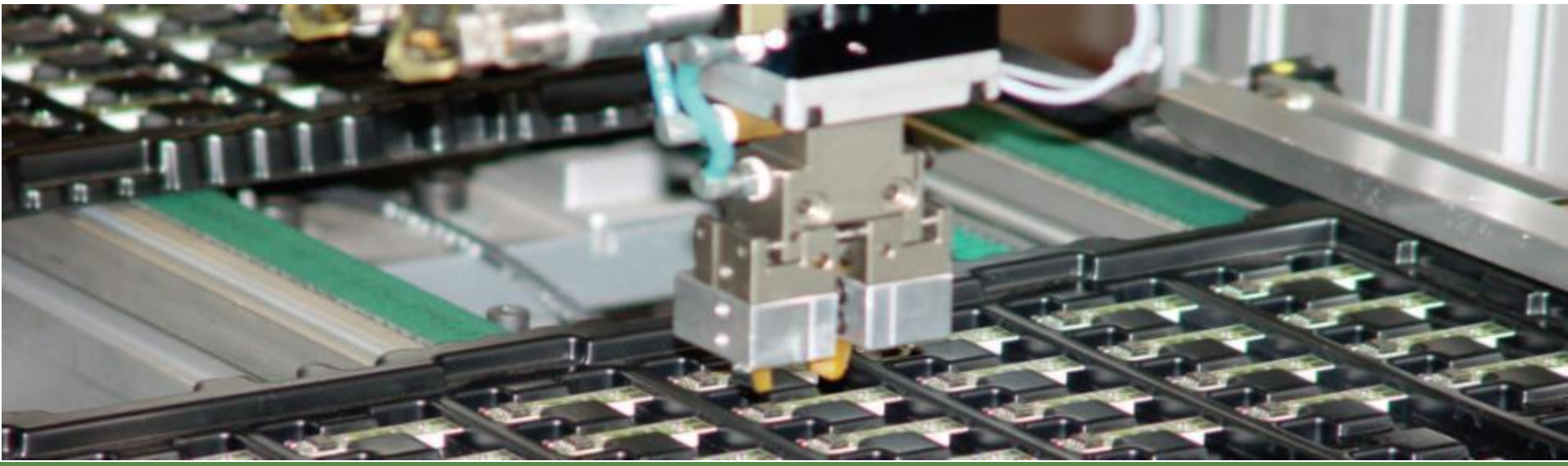
- **Material can be tailored to meet application needs:**
  - Conductive materials: Surface resistivity **$10^2\Omega$/sq.** to**$10^5\Omega$/sq.**
  - Dissipative materials: Surface resistivity **$10^5\Omega$/sq.** to **$10^{11}\Omega$/sq.**
  - Insulating materials: Surface resistivity higher than **$10^{11}\Omega$/sq.**
- **Carbon black in polymer matrix provides permanent conductive properties – can't wash/wear off or vary with environment.**



Reusables Benefits In Action

ESD Reusable Packaging for Electronics – Characteristics of Best Fits

- Work-in-process or closed loop applications – manufacturer to assembly
- High volume applications with short shipping distances
- High value components – high consequence of in-transit damage
- Long project life to generate return on reusable investment
- Opportunities to leverage automation at both ends of supply chain
- In conjunction with standardization in processes, storage & shipping.



Reusables Benefits In Action

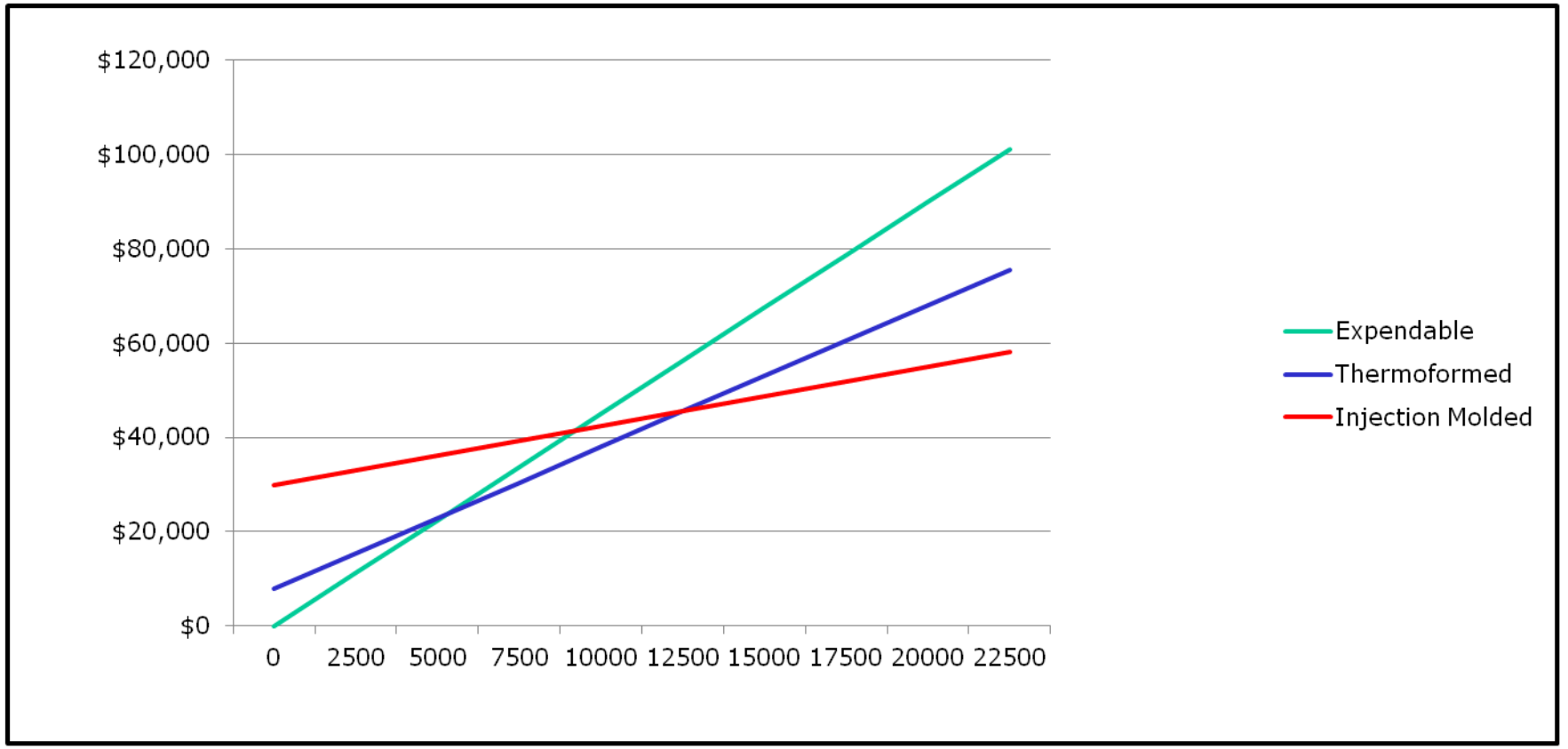
ESD Reusable Packaging for Electronics – Types of Containers

- Standard Footprint Injection Molded Containers
  - Automotive or Metric – RAKO pallet optimization
  - Can be used for multiple programs
- Standard Thermoformed Trays
- Custom Injection Molded Trays
  - Increase precision for greater pack density
- Custom Thermoformed Trays
  - Lower tooling cost
- Adjustable Printed Circuit Board Holders

Reusables Benefits In Action

ESD Reusable Packaging for Electronics – Return on Investment

- Thermoformed trays – Lower tooling, higher unit cost 2,500 - 5,000 BE
- Injection molded trays – Higher tooling, lower unit cost 10,000 - 15,000 BE

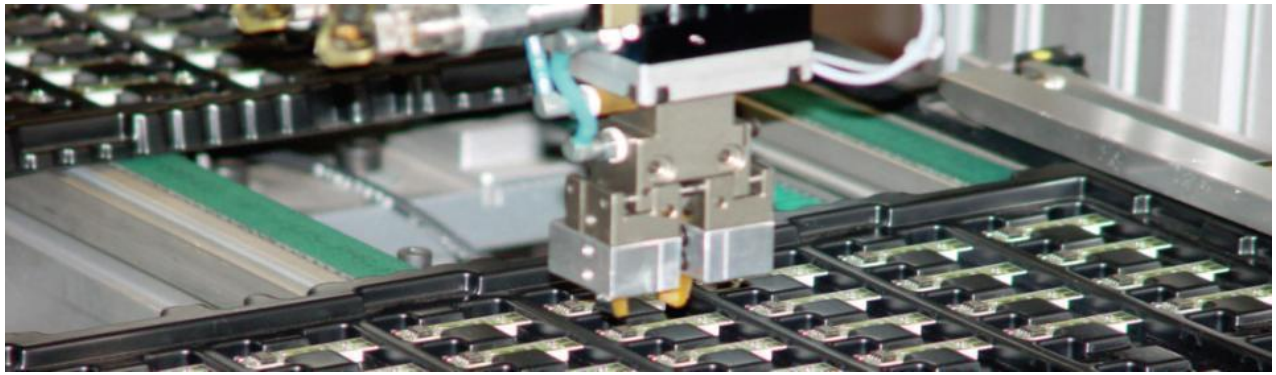


Reusables Benefits In Action

ESD Reusable Packaging for Electronics – Added Value Opportunities

- Reusable ESD Systems can be integrated into automated load & unload stations – reducing labor and potential for handling damage.
- Trays can also be stacked, de-stacked and nested using automation.
- Trays can provide total product protection, eliminating outer containers.
- Significant increases in packing density and exact part counts can be achieved to reduce logistics costs.

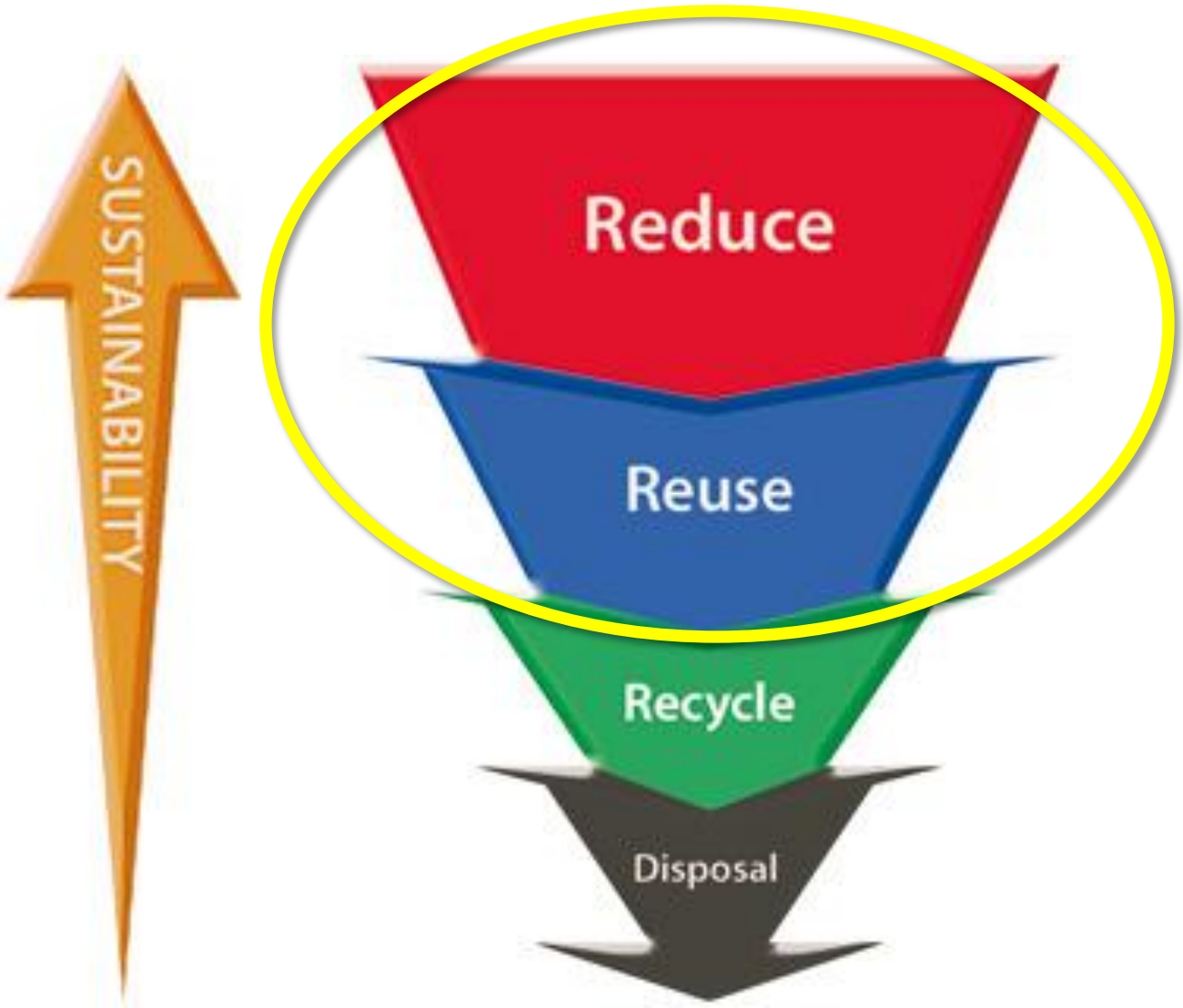
Results: Improved Quality. Reduced Labor & Better Inventory Control



Courtesy of:
George UTZ, Inc.
www.utzgroup.com

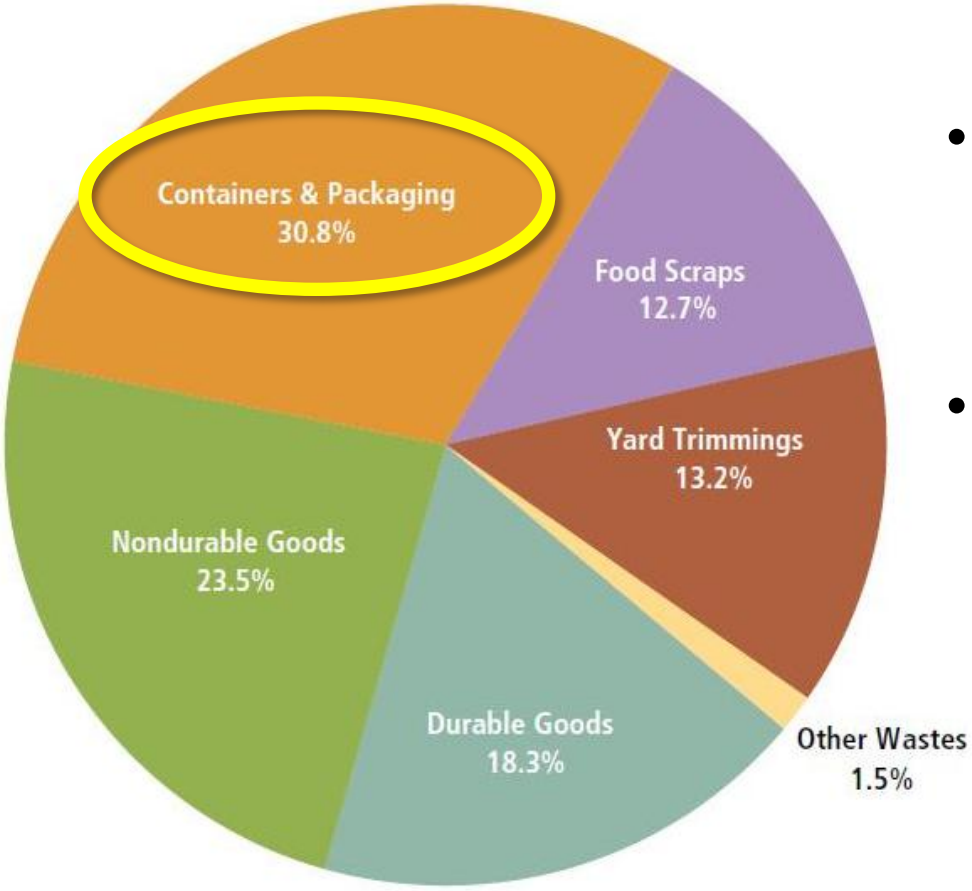
Environmental Benefits

“Reduce & Reuse” are the Most Sustainable



U.S. Solid Waste

Disposable Containers & Packaging are 30% of North America's Municipal Solid Waste



- 56% of these valuable resources are wasted in landfills.
- The remaining 44% are recycled; often downcycled into less valuable products.

Total MSW Generation (by category), 2008
250 million tons (before recycling)

U.S. Greenhouse Gas Emissions

Over 1/3 of U.S. Greenhouse Gas Emissions are Attributable to Producing & Transporting Goods

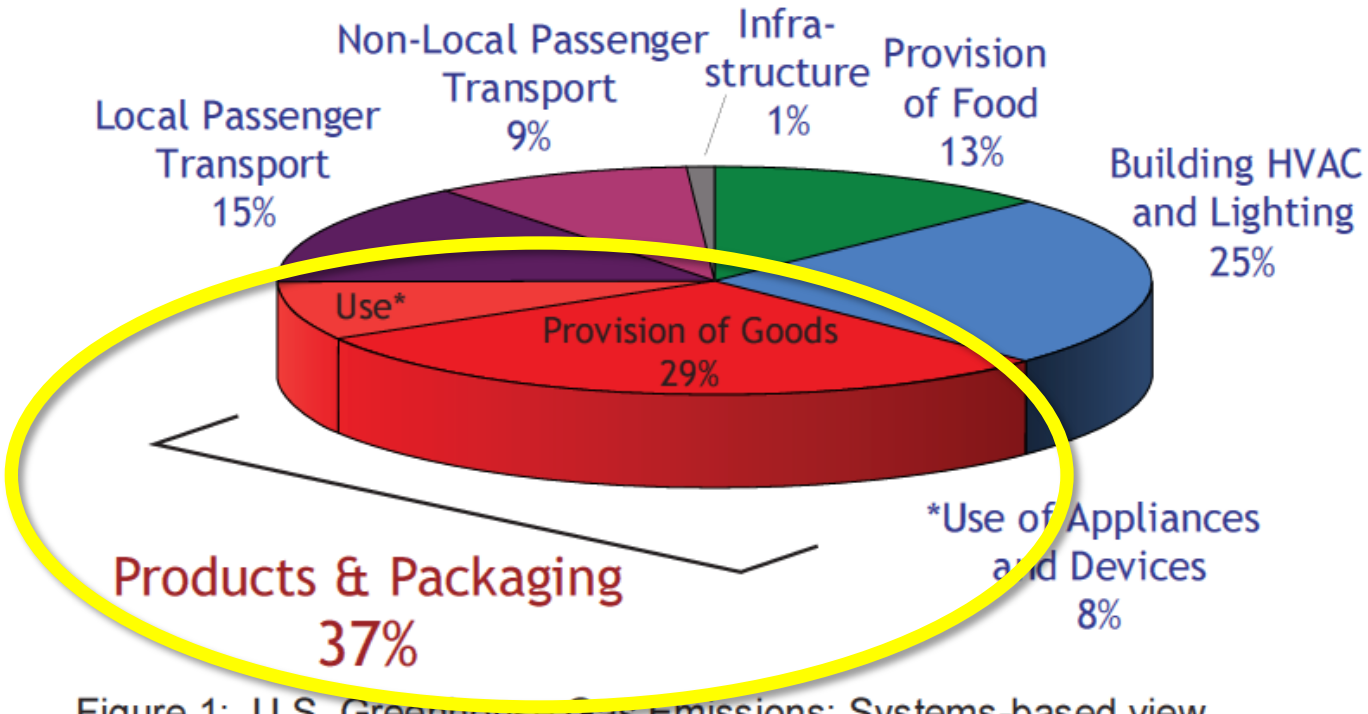


Figure 1: U.S. Greenhouse Gas Emissions: Systems-based view.
Source: U.S. EPA, 2009.

(Provision of Goods: all consumer goods including building components and vehicles.)

Environmental Impact of Disposable Packaging

One Ton of Corrugated Cardboard:

- Generates 5.3 MTCE of greenhouse gases – over 3 times as much as plastic
- Consumes 17 trees
- Consumes 7,000 gal. of fresh water
- Generates 3.3 cubic yards of landfill
- Consumes 4,000 KWH of energy

Wooden Pallets in the US:

- Consume 14 – 17 million trees a year
- Consume 30% of all hardwood used
- Represent 2-3% of all landfills

Reusables Benefits in Action

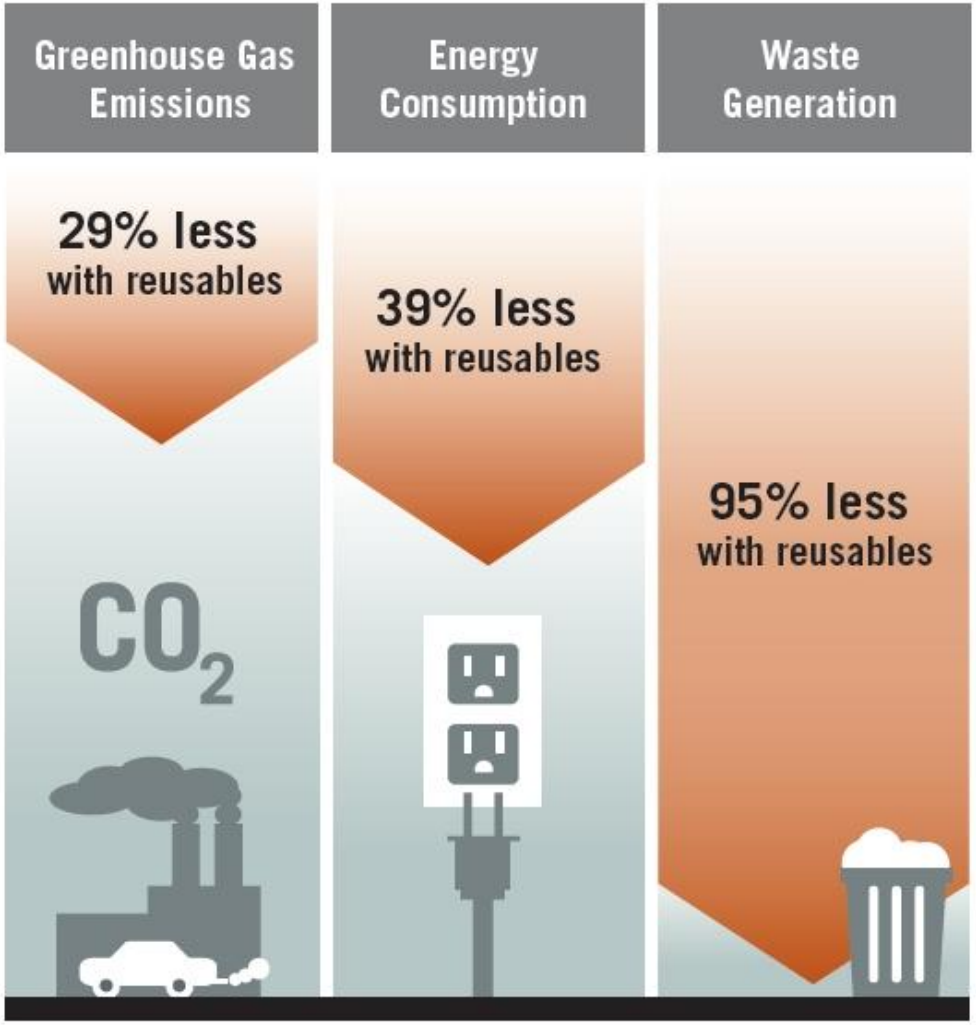
Reusable Containers for Supplies – Closed Loop

NUMMI

- NUMMI reduced cardboard consumption by 60% by purchasing, using and requiring suppliers to use reusable shipping containers.
- Prevented 11,000 tons of solid waste from being generated
- 58.3 MTCE greenhouse gas reduction
- Resulted in $2.5 Million/yr savings

Benefit: Waste Prevention, GHG reduction

Environmental Benefits of Reusables



Reusable transport packaging containers

- generate 29% less total greenhouse gas emissions;
- require 39% less total energy; and
- produce 95% less total solid waste on average.

See Reusables 101 page 9

Health & Safety Benefits

Health & Safety Benefits

- **Reduce injury from overfilling** non-uniform boxes.

Reusables Benefits in Action

Reusable Totes

Closed Loop Distribution

Peerless Coffee & Tea Company – Oakland, CA

- Replaced single use cardboard boxes with reusable totes for three of their Bay Area delivery routes
- Saving 1.5 tons of cardboard per year = 18 tons of avoided CO2 emissions

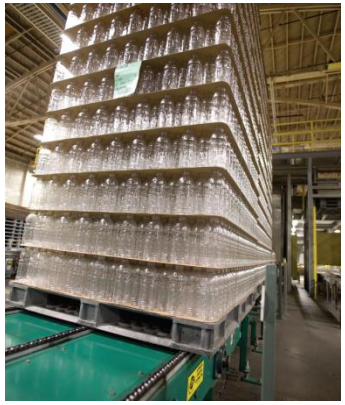
Benefit: Reduced Injury, Lower Material Costs over Time

Health & Safety Benefits

- **Reduce injury from overfilling** non-uniform boxes.
- **Reduce injury from broken pallet debris** hazards such as splinters, nails and wood on the floor.

Reusables Benefits in Action

Plastic Pallets for Beverage Distribution – Open Loop



PepsiCo's Gatorade Plant

- Switched from wood pallets to leased reusable plastic pallets
- Significant savings by eliminating damage to product from pallets
- Reduced equipment jams
- Minimized labor needed to sort out bad pallets
- Cleaner warehouse with less hazard-causing debris

Benefit: Reduced product damage & improved safety

Health & Safety Benefits

- **Reduce injury from overfilling** non-uniform boxes.
- **Reduce injury from broken pallet debris** hazards such as splinters, nails and wood on the floor.
- Ergonomically designed reusable totes can reduce **bending, lifting and handling injuries**.

Reusables Benefits in Action

Reusable Totes for Office Relocation – Open Loop

StopWaste.Org used totes to pack and transport items during their office move.

- Rigid totes offered better protection of contents.
- Dollies eliminated heavy lifting.
- Elimination of cardboard boxes and tape saved set-up and clean-up time.
- Increased moving truck capacity by 40%-50%, cutting GHG emissions.

Benefit: Improved efficiency, Safety & Ergonomics

Health & Safety Benefits

- **Reduce injury from overfilling** non-uniform boxes.
- **Reduce injury from broken pallet debris** hazards such as splinters, nails and wood on the floor.
- Ergonomically designed reusable totes can reduce **bending, lifting and handling injuries**.
- Reduced risk of **food contamination** with sanitized totes.
- Reduce **injuries from rolling drums and chime removal.**

Reusables Benefits in Action

Bag-in-Box IBCs for Health & Beauty Products – Closed Loop

Marietta Corp – Major supplier of hotel amenities

- Reusable bag-in-box, foldable IBCs to transport & store bulk liquid
- Eliminated the use of drums and single-use IBCs
- Single use liners eliminated effluent waste, bag wringing reduced residual waste
- Eliminated risk of batch to batch contamination.
- Increased storage space.

Benefit: Reduced Contamination and Reduce injury from drums

Questions before we move on?

Attributes of Good Reusables Opportunities

- Within One Facility, Closed Loop, or Managed Open Loop
- Flow of Consistent Products in Large Volumes
- High Turn Rate
- Large and/or Bulky Products, or Easily Damaged Products
- Suppliers or Customers Grouped Near One Another
- High Waste Disposal or Recycling Costs
- Sustainability Goals or Mandates

Reusables Systems: 3 Types

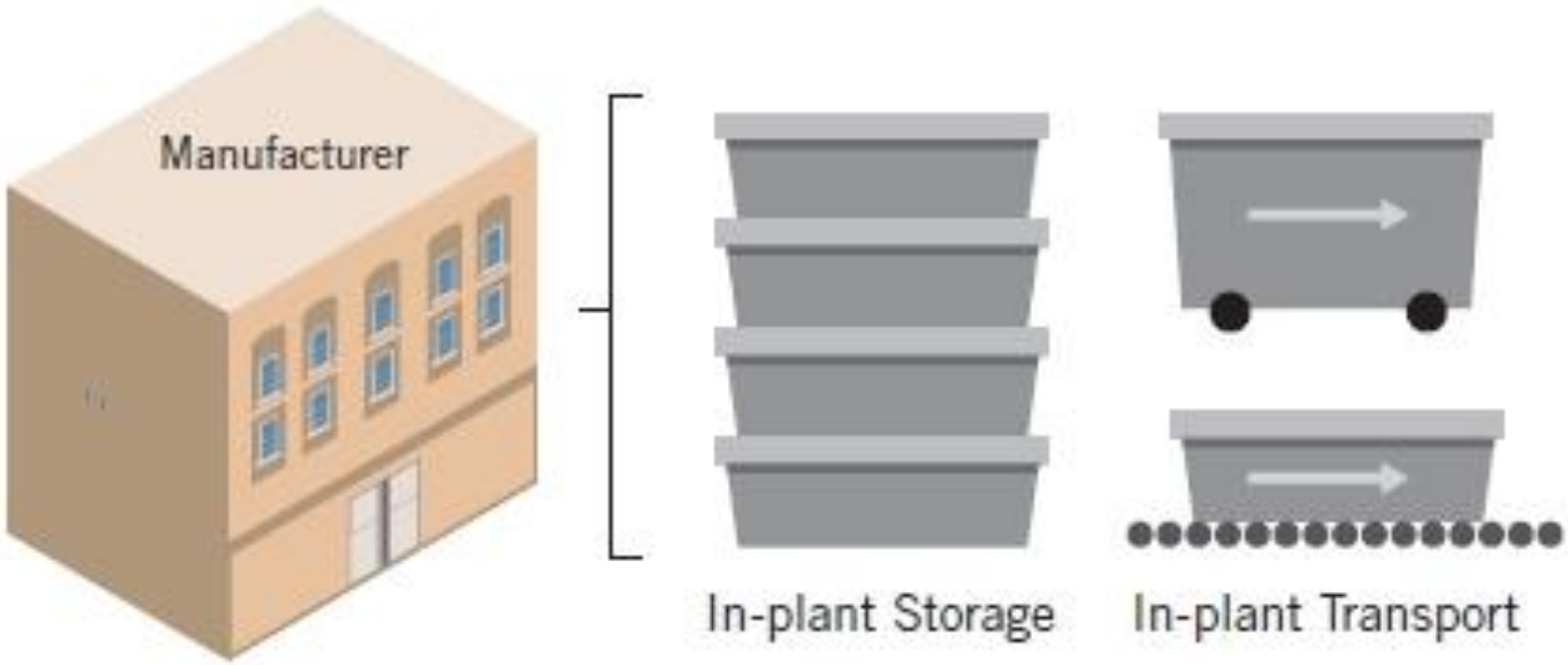
- **Work-in-Process**: Used in-plant for storage and transport within a single facility.

- **Closed-Loop**: Reusables move through supply chain without 3rd party management; this approach is ideal for reusables.

- **Open-Loop**: A 3rd party company manages the return of empty containers and distribution of containers back to the manufacturer; best for consistent flow with high volume.

Attributes of Good Opportunities

Within a Single Facility



Ghirardelli: Work In Process

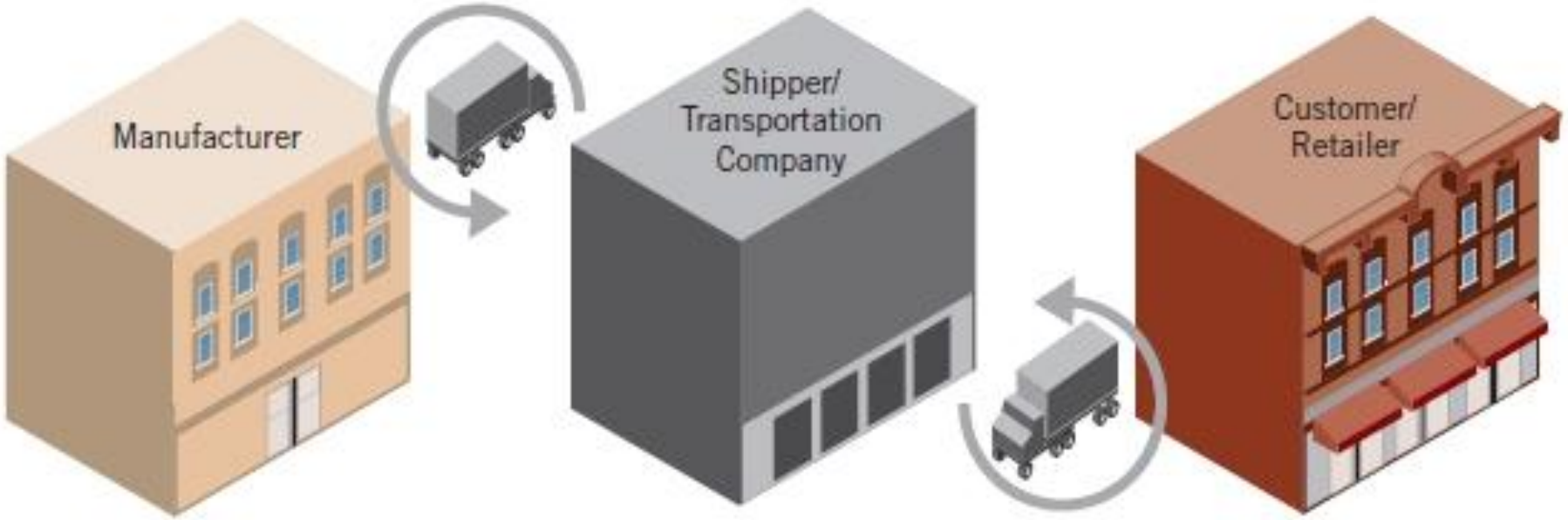
Limited Use

Work-In-Process

Ghirardelli Chocolate purchased reusable totes to move products in **"work-in-process" for one of their production lines**. This switch saves costs and environmental impacts of 228 tons/yr of cardboard boxes that were previously purchased, assembled, handled and recycled – 1,208 MTCE greenhouse gas emissions avoided.

Attributes of Good Opportunities

Closed-Loop System



CarQuest – Closed Loop

Distribution Totes

Material Handling MANAGEMENT

Best Practices | Packaging

The Right Tote For The Job

Supplier limits product damage by studying the shipping environment to design better packaging for Carquest Auto Parts. By Clyde R. Witt

How to work with a partner

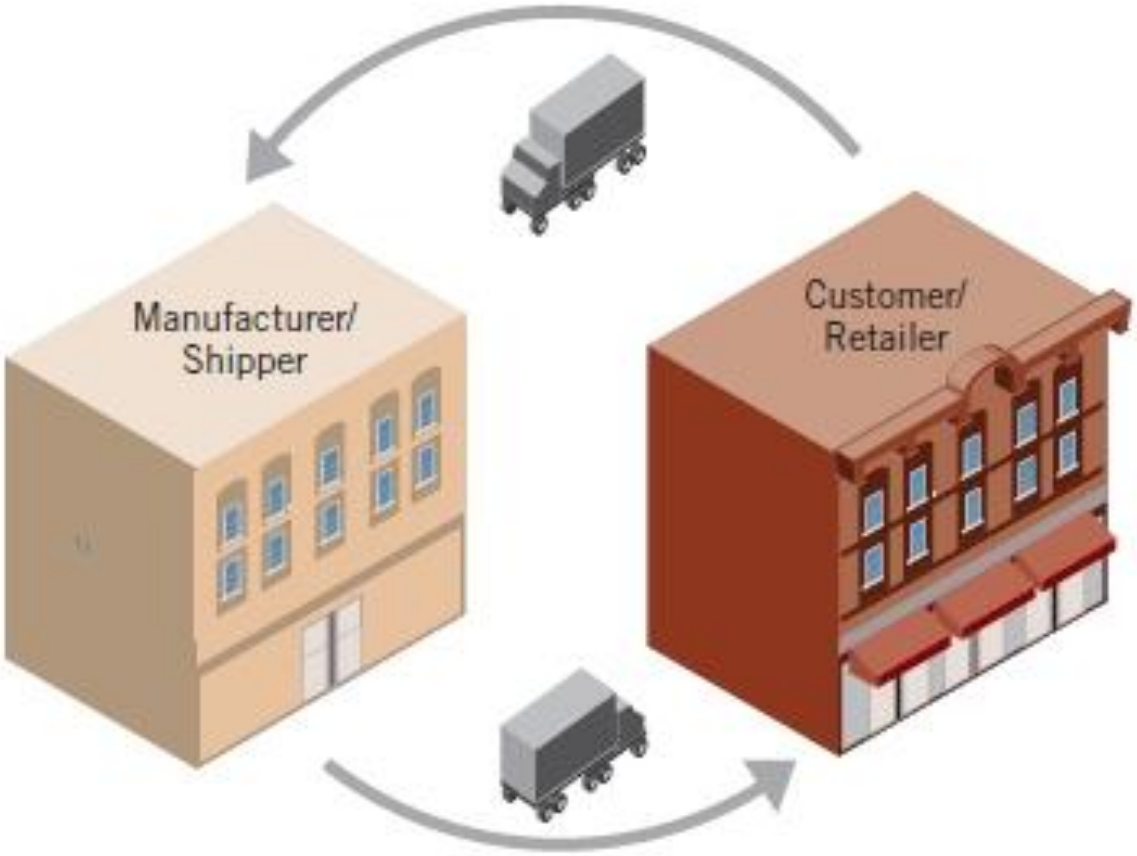
Less Than Case Load Retail

CarQuest Auto Parts uses to distribute less-than-case loads of auto parts from its DCs to its customers.

- Durable totes provide better protection to parts reducing damage.
- Ergonomic handles reduced back and wrist injuries.
- Increased stack height increased trailer capacity to reduce freight.
- First generation tote eliminated corrugated waste with rapid ROI.
- Second generation tote nearly eliminated tote damage and injuries associated with handling damaged totes.

Attributes of Good Opportunities

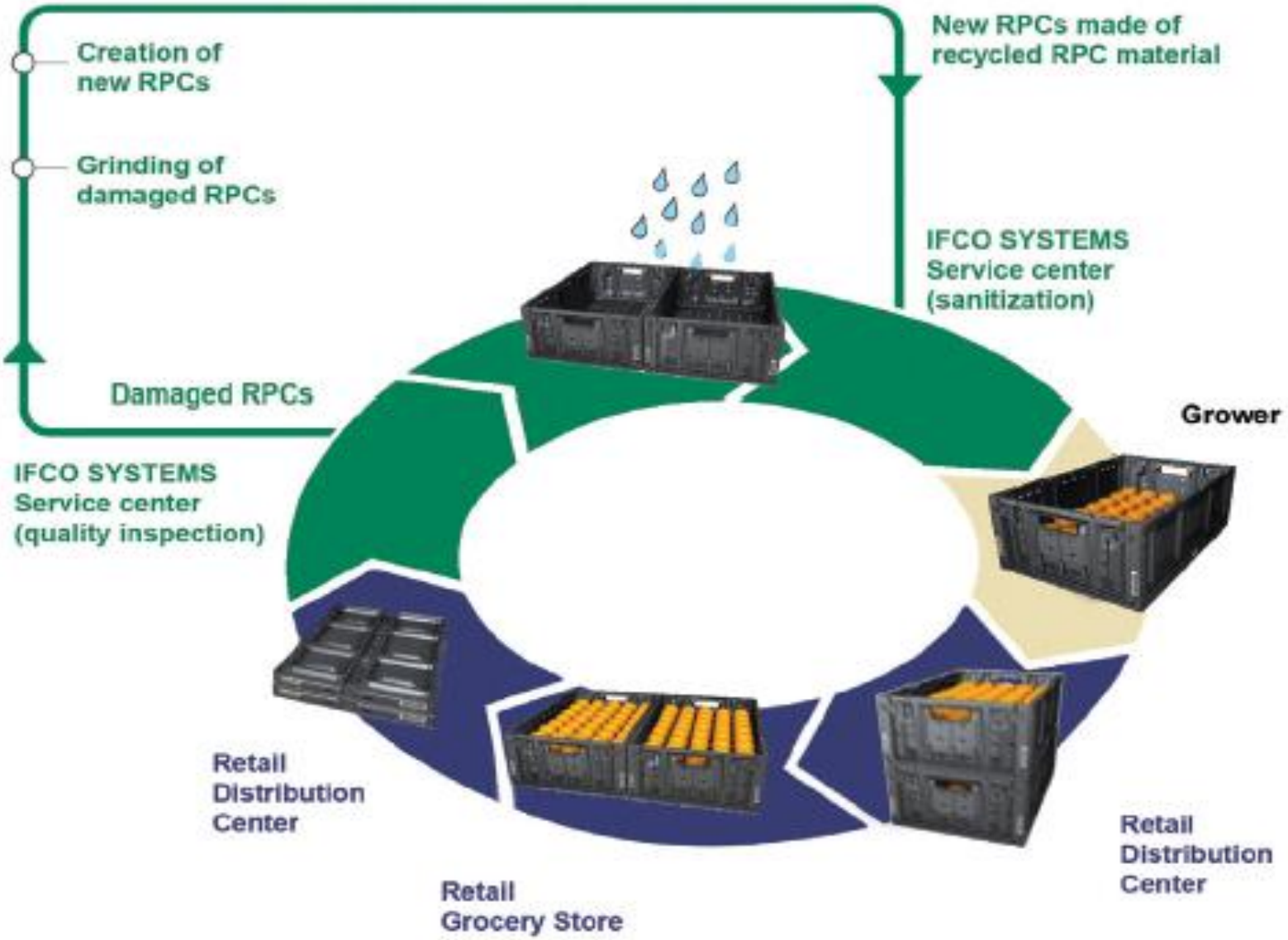
Managed Open-Loop System



Open Loop Pools In North America

- RPCs for Produce, Meat and Eggs.
- GMA Pallet for retail distribution.
- IBCs and Bulk Bins for liquids, solids & parts.
- Office Moving Crates.
- Other specialty applications.

Example Open Loop Pooling Model



Value Points of RPCs and Fresh Produce

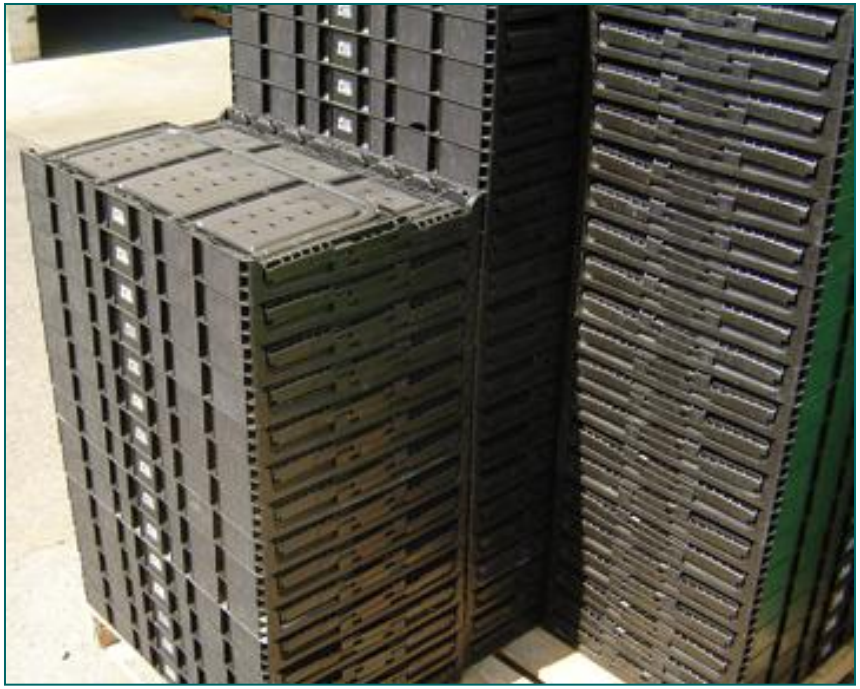
vs

- Reduced product damage and shrink
- Field heat removed quicker
- Higher produce quality at store level
- Better truck utilization to retail
- Possible use as “one touch merchandising”
- Cost efficient against traditional packaging
- Reduced disposal time at store level

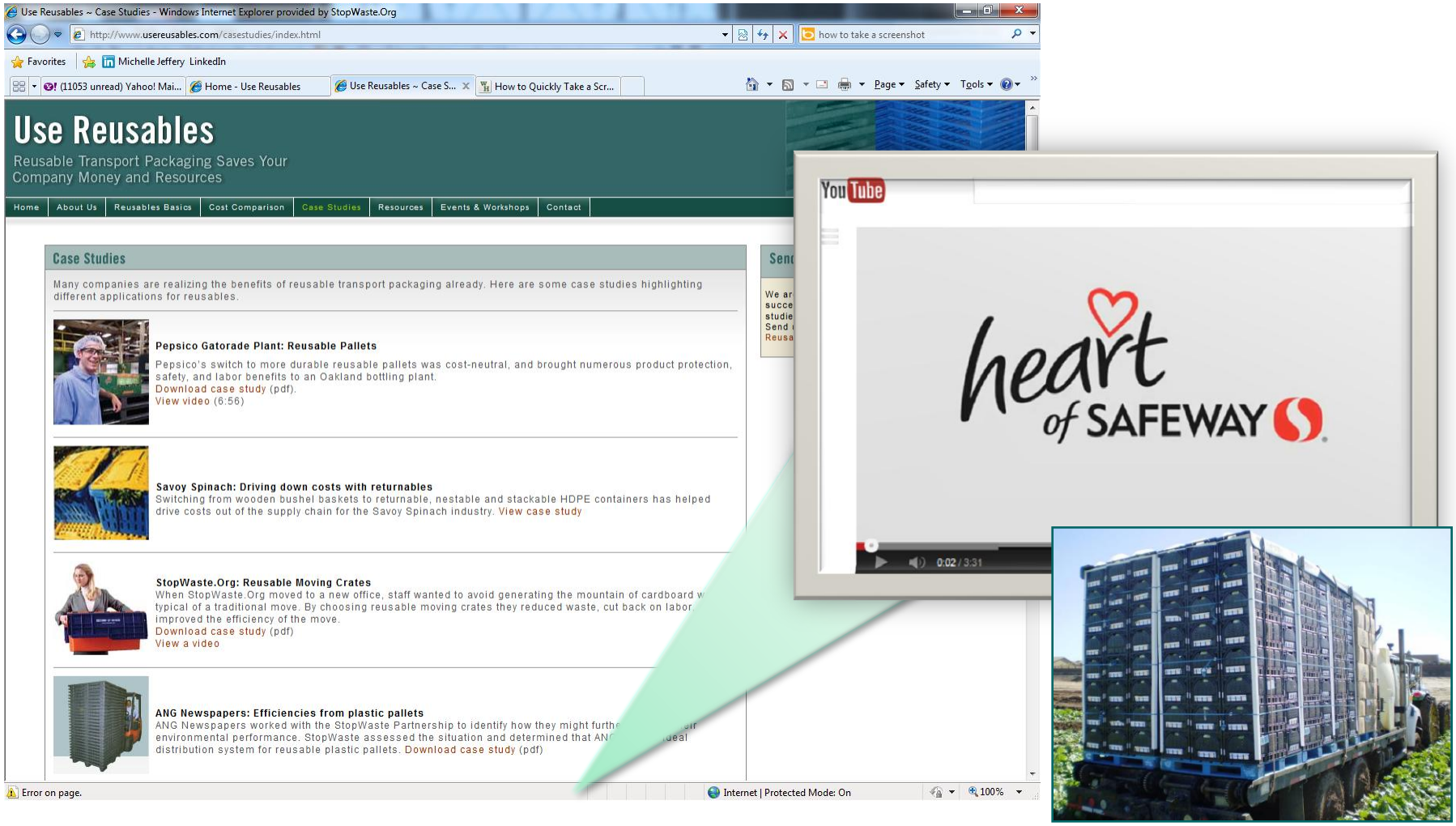
Stability

Unitization and Cube Efficiencies

Disposal vs. Re-collection

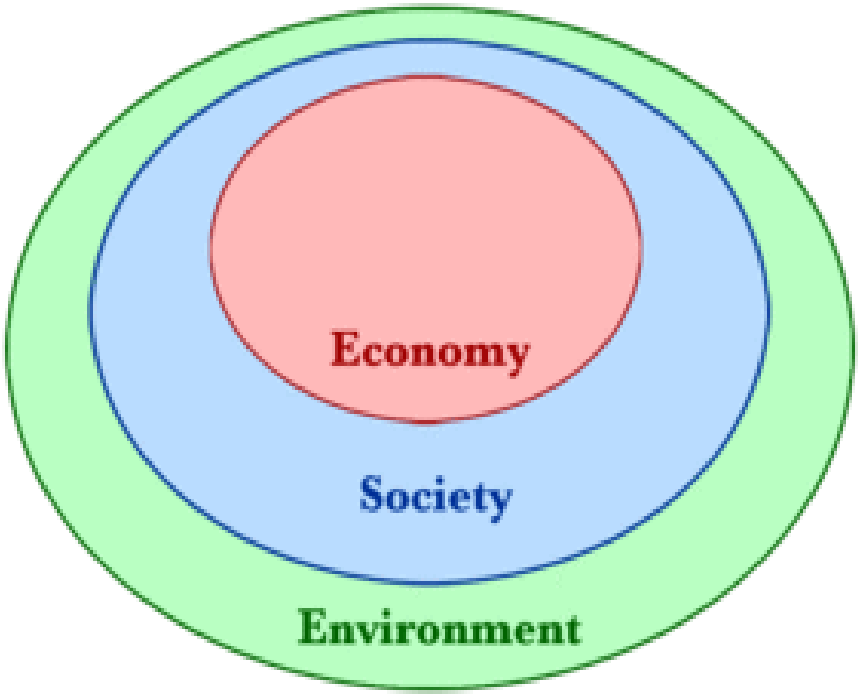


Fresh Produce – Open Loop Pooling



Attributes of Good Opportunities

- High Waste Disposal or Recycling Costs
- Sustainability Goals or Mandates



Attributes of Good Opportunities

- Flow of Consistent Products in Large Volumes
- High Turn Rate

Attributes of Good Opportunities

Toyota Logistics Services

Solutions

Reduce waste and cut costs by switching to reusable shipping containers, through supply chain management, and by expanding recycling.

Reusable Shipping Containers

Carpet used to be shipped in one-time-use cardboard boxes on pallets. Now, at all six Toyota Logistics Services (TLS) vehicle delivery facilities, carpet is shipped in large reusable plastic containers that collapse, stack, and don't require a pallet. This switch prevents 3,000 tons of combined wood and cardboard waste and saves $3.5 million for all six facilities every year.

Supply Chain Management

TLS Fremont has arranged to have multiple truck running boards shipped together in the same container. Previously, running boards were packaged individually in Styrofoam and cardboard boxes. Now compostable cornstarch-based foam is used, and the running boards are packed 14 to a box. The cornstarch packaging and cardboard are recycled after use. This project has cut packaging costs by $15,000 a year.

In 2005 the truck bed of the Tacoma was changed—from metal with a liner to a composite bed. The new composite bed not only eliminates the need for a liner, but also means the packaging used to ship liners is no longer needed. These modifications have cut pallet use in half.

Expanded Recycling

TLS Fremont expanded recycling collection by placing additional bins throughout its office and on the factory floor, and by increasing the types of materials collected. StopWaste Partnership provided funding for the new bins plus signage, including bilingual posters; made presentations to staff; and helped with bin placement. They recycle cardboard, mixed paper, beverage containers, plastic film, car parts, food waste, and cornstarch packaging. The company has reduced its garbage bill by $12,000 a year and is actually earning revenue by selling some materials to recycling vendors.

"The key to our success was making sure all of the associates were aware of the recycling program, then giving regular updates to keep them engaged in the process. Having the right supplies in the correct areas is also important, which means that regular observations as to what is being placed where are essential."

KAREN MOORE
Environmental and Safety Engineer, TLS Fremont

STOPWASTE PARTNERSHIP

The StopWaste Partnership

The StopWaste Partnership is a free technical assistance service dedicated to improving the environmental performance and reducing costs of Alameda County businesses and public agencies. The program provides expert support and funding to prevent waste, conserve water and energy, and use all resources more efficiently.

The bottom line:

For TLS Fremont facility:

- $12,000 savings in disposal costs
- $15,000 savings by eliminating running board packaging
- $5,000 mini-grant for recycling bin purchase

Visit **www.stopwaste.org/partnership** or call **1-877-STOPWASTE.**

Printed on 100% recycled paper, 50% post-consumer content.

- Large or Bulky Products
- Easily Damaged Products
- Example**: Toyota Logistics Services** used to pack their heavy carpet and large truck bed liners in disposable packaging. They switched to reusables and **prevented 3,000 tons of combined wood and cardboard waste and saved $3.5 million for all six facilities per year**.

Other Factors Affecting Financial Value

- Supply Chain Cycle Time
- Geography of Return Logistics
- Reverse Supply Chain Predictability
- Business Seasonality
- Customization
- Number and dispersion of end users
- Degree of sanitization required after each use
- and…

Other Factors Affecting Financial Value

Container Theft

Pallet Repair

Reusables Benefits in Action

Case Study: Kaiser Permanente (KP)

- Livermore Distribution Center switched to reusable totes for “less than case load” distribution
- Use color-coded totes for distribution to over 55 locations in No. CA

Welcome, Nicla Sinnott - KP

Questions before we move on?

7 Steps to Implementing Reusable Transport Packaging at Your Business

Step 1 - Understanding

What are reusables?

Your decision-makers and other stakeholders need to learn what reusables are and how they help your business.

Step 2: Identify Potential for Reusables

Where are the "Low Hanging" Opportunities?

Internal Work in Process

1. What work in process is creating waste?

Supply Chain

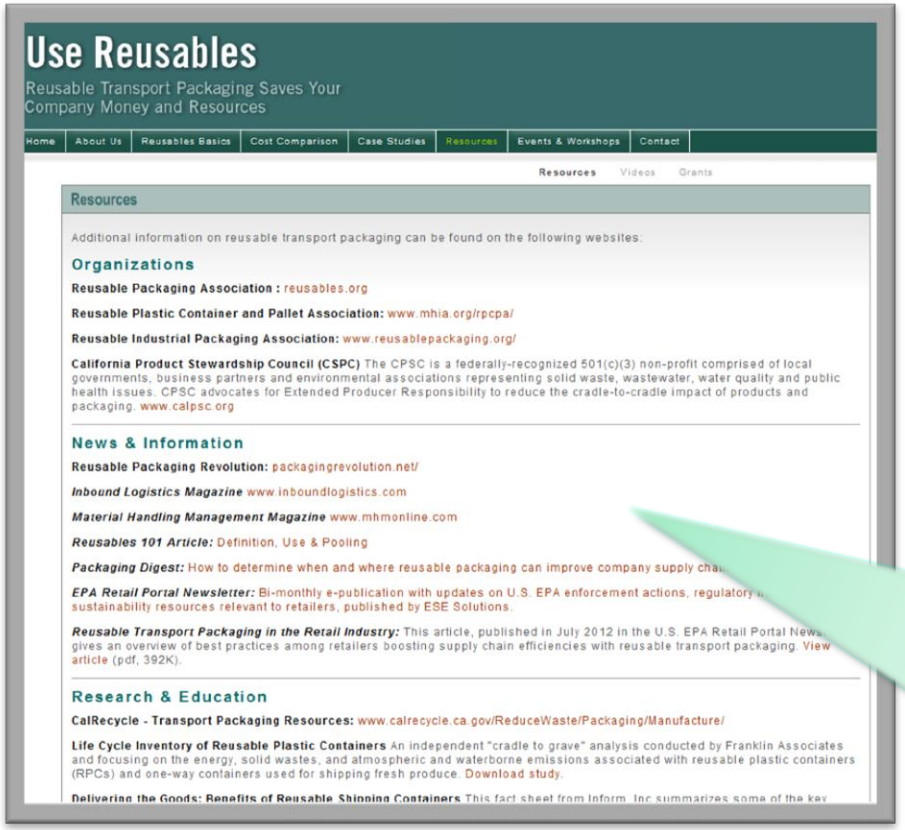
1. What supply chain and/or Customer relationships….
   - Are Closed Loop?
   - Reuse with Other Suppliers/Customers?

Logistics

1. What type(s) of reusables will work?
2. Will we Buy or Lease?
3. Where/how will we store them?
4. Do we need to clean them?
5. How will we track them and get them back?

Step 3: Gather Information

Get Cost Estimates for Equipment



Two Options:

- Directly from vendors
- Submit an Reusables Information Request Form

Go to the "**Resources**" tab for a list of vendors

Step 4: Assess the Costs

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www.usereusables.com/cost/cctool.html

1. Perform a cost & sustainability comparison using our free cost calculator

2. Review the ROI to determine if it fits within your company's threshold

Step 5: Buy In

Stakeholders	Priorities	Reusables Resources
Finance Department	Revenue	Cost Calculator to estimate ROI
Logistics Managers	Efficiency and Safety	Case Studies and examples of increased unitization and reduction of workplace hazards
Purchasing Department	Cost Savings	Cost Calculator to identify all costs
Suppliers/Customers	Product Protection	Case Studies and examples of product protection; Request samples

Step 6: Procure Equipment or Services

Identify Funding

- Capital Expense from which budget?
- StopWaste.Org/EPA grant funding

Procure Equipment

- Order the equipment
- Accessory equipment: Labeling and Storing Items

Education

- Train staff
- Educate Logistics partners
  - Benefits
  - Procedure

Step 7: Implementation

Implementation

1. Use your Reusables
2. Tracking Assets
3. Measuring
4. System Cost Improvement & Redesign
5. Retraining & Reinforcement

More Details:

Financing & Asset Tracking Options

Financing Options

OWNERSHIP

- Purchase (Cash)
- Financing/Capital Lease

or

THIRD PARTY

- Rental/Operating Lease
- Pooling (rental w/ services)

What Makes the Most Sense?

Ownership Options	Pros	Cons
➢ Purchase (cash)	• No financing cost • No long-term liability	• Lost opportunity costs • Burdens of ownership
➢ Financing/Capital Lease	• Increased cash flow • Lower interest rates • Typically longer term financing	• Long-term liability commitment • Utilizes available credit facilities • Burden of ownership

Third Party Options	Pros	Cons
➢ Rental (<1 yr) ➢ Operating Lease	• Variable costing • No burdens of ownership • Higher utilization • Off balance sheet financing • Greater flexibility	• Higher costs • No asset ownership
➢ Pooling (rental w/ services)	• Pay for what you use • Off balance sheet • No capital up-front	• Duplicates in-house capabilities • Potential ancillary charges

Asset Tracking Options

Tracking: If you can't measure it, You can't manage it…

What Makes Dollars and Sense?

Aggregate Tracking

Individual Tracking

Barcode

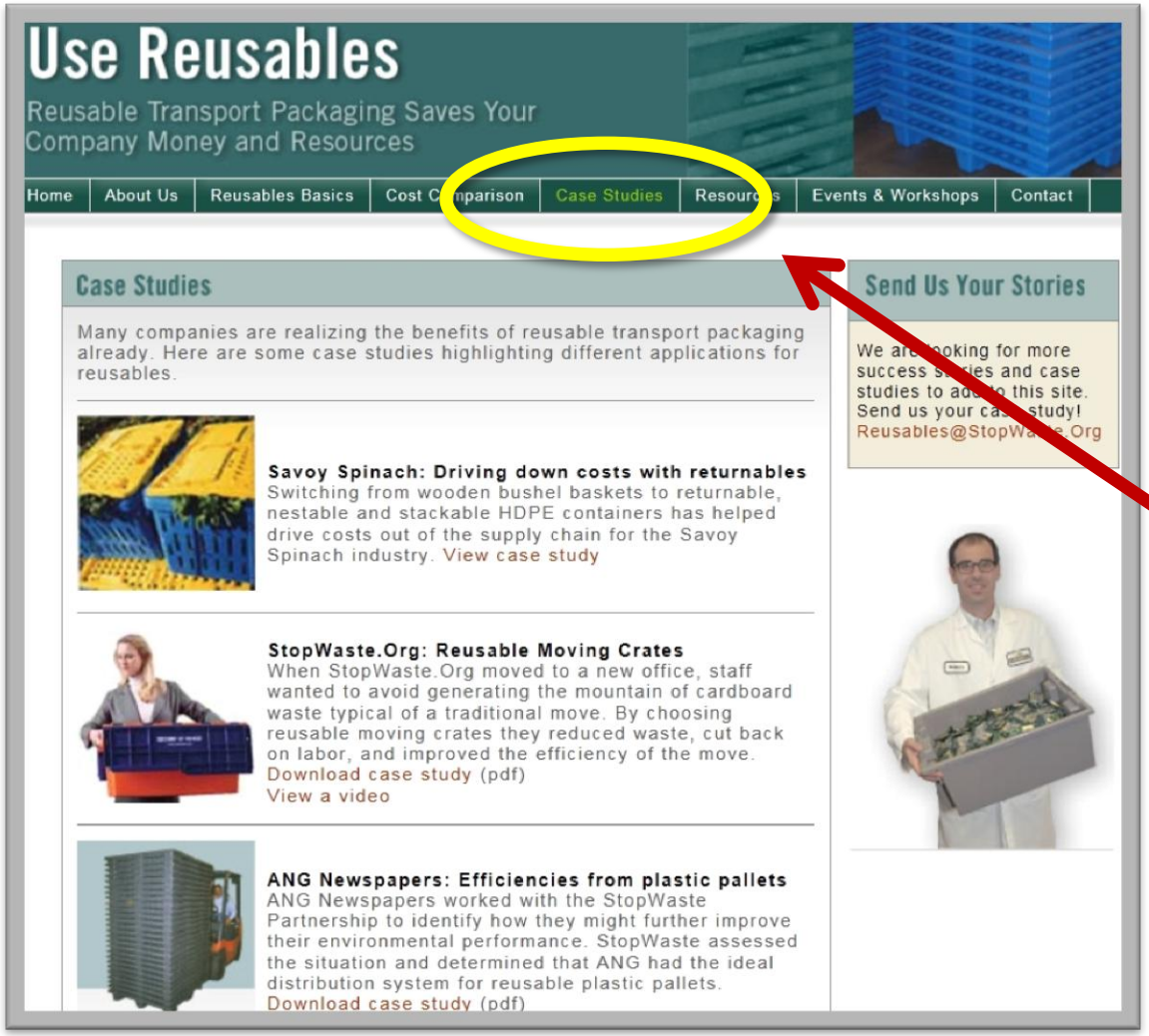
RFID

Aggregate vs. Individual Tracking

SYSTEM TYPE	ASSET ID	ACCURACY	IMPLEMENATION/ DIFFICULTY	SOLUTION COST	ADDITIONAL HARDWARE
Aggregate Asset Tracking	Visual label None	Medium	Shorter/Easy	Low - Medium	None
Individual Asset Tracking	Barcode Passive RFID Active RFID GPS	High	Longer/Intermediate	Medium - High	Scanners (laser/RFID)

More Resources for You

More Information



Visit the Use Reusables StopWaste.Org educational website at UseResuables.com

- **Download Free Case Studies**
- **Read Articles**
- **Watch Short Videos**
- **Use the Cost Comparison Calculator**

Next Steps

- After the training consider Reusables
- Complete Information Request Form
- We work together to find solutions for your supply chain
- Become a model case study

STOPWASTE.ORG
Reducing the Waste Stream for Alameda County

RPA
REUSABLE
PACKAGING
ASSOCIATION

Panel Discussion

Emerging Trends in Reusables

Moderated by Justine Burt,
Use Reusables Team Member

Welcome

Doug Heywood – Owens & Minor

Supply Logistics Partner for

Stanford University Medical Center

Dean Mayes – Finelite

Director of Manufacturing

Nancy Parmer – UPS

Senior Director of Sustainability