

Reverse Logistics

Moving forward in Reverse

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What is Logistics?

- **Forward Logistics:**

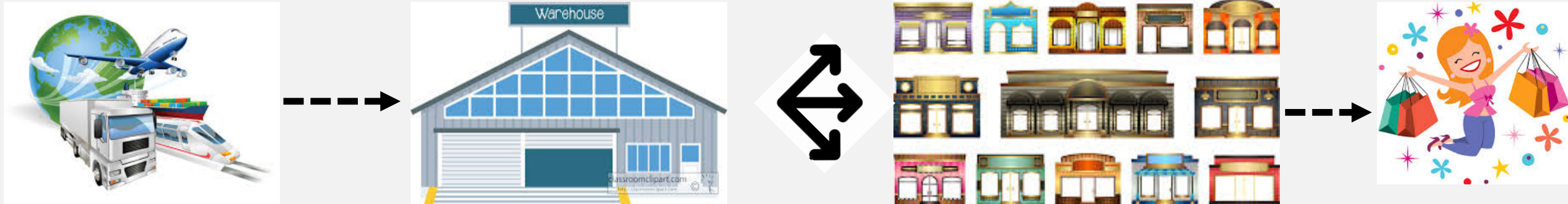
the process that controls the efficient, effective flow and storage of goods from the point-of-origin to the point-of-consumption in order to meet customers' requirements (CSCMP - Council of Supply Chain Management Professionals).

Reverse Logistics:

the movement of products, materials in the opposite direction for the purpose of creating or recapturing value, or for proper disposal (Rogers and Tibben-Lembke, 1999, 2001).

What is Logistics?

- *Forward Logistics*



- Place Purchase Order
- Schedule Delivery

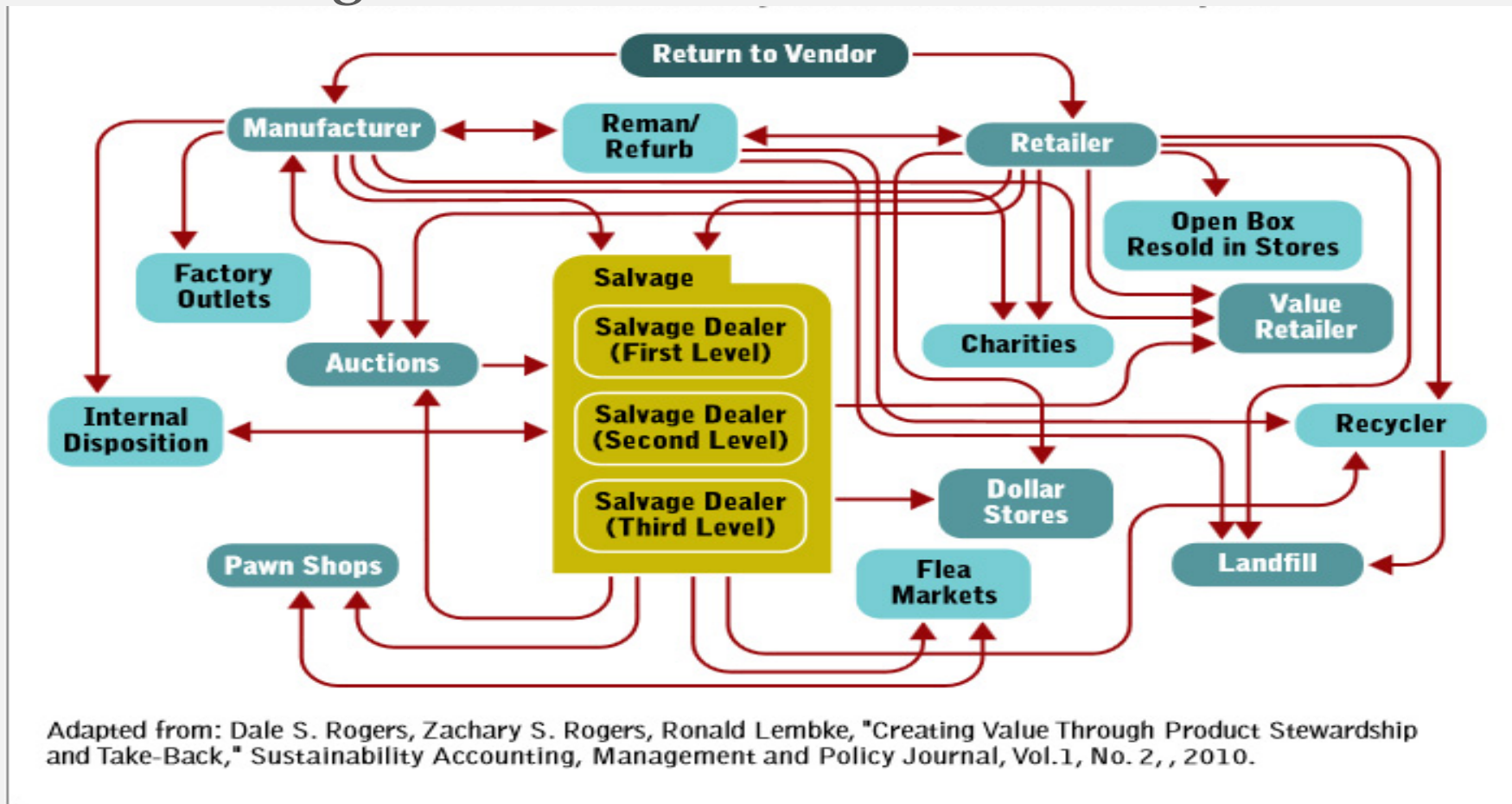
- Receive & Store Inventory
- Receive Order for Shipment
- Pick, Pack & Ship Order to Sales Channel

- Channel Sales Experience
 - Retail
 - Web
- Manage OS&D

- Happy Customer

What is Logistics?

- *Reverse Logistics*



What is Logistics?

Differences Between Forward and Reverse Logistics

Forward

- Product Quality Uniform
- Disposition Options Clear
- Routing of Product Unambiguous
- Forward Distribution Costs More Easily Understandable
- Pricing of Product Uniform
- Inventory Management Consistent
- Product Life Cycle Manageable
- Financial Management Issues Clearer
- Negotiation Between Parties More Straightforward
- Type of Customer Easy to Identify and Market to
- Visibility Of Process More Transparent

Reverse

- Product Quality Not Uniform
- Disposition Not Clear
- Routing of Product Ambiguous
- Reverse Costs Less Understandable
- Pricing of Product Not Uniform
- Inventory Management Not Consistent
- Product Lifecycle Less Manageable
- Financial Management Issues Unclear
- Negotiation Less Straightforward
- Type of Customer Difficult to Identify and Market to
- Visibility of Process Less Transparent

Adapted from: Tibben-Lembke, R. S., & Rogers, D. S. (2002). "Differences between forward and reverse logistics in a retail environment," *Supply Chain Management: An International Journal*.

Size of Reverse Logistics

There's a good chance your holiday returns will end up in a landfill

by Laura Sanicola CNN Money
December 26, 2017: 6:54 AM ET

- Each year, U.S. consumers return about **\$380 billion worth of goods** -- \$90 billion of which are processed during the holiday.
 - Only half of returns make it back onto shelves
 - But many returns are sold for pennies on the dollar to liquidators and discounters before ending up at regional wholesalers, who send the goods to pawn shops, dollar stores or even out of the country.
- The National Retail Federation estimates 15% to 30% of items bought online will be returned -- about \$32 billion worth.
- Returned electronics can lose much of their value over a six-month period.
- Globally, returns and excess inventory cost retailers \$1.75 trillion annually.
- Due to brand concerns, many companies choose to shred, incinerate or throw away items they can't sell as new "A-stock."

Size of Reverse Logistics

At least **30%** of all products ordered online are returned as compared to **8.89%** in brick-and-mortar stores



62% of shoppers are more likely to shop online if they can return an item in-store.

Around **49%** of retailers offer free return shipping now



92% of consumers will buy something again if returns are easy whereas



79% of consumers want free return shipping



67% of shoppers check the returns page before making a purchase



Top reasons why consumers return products

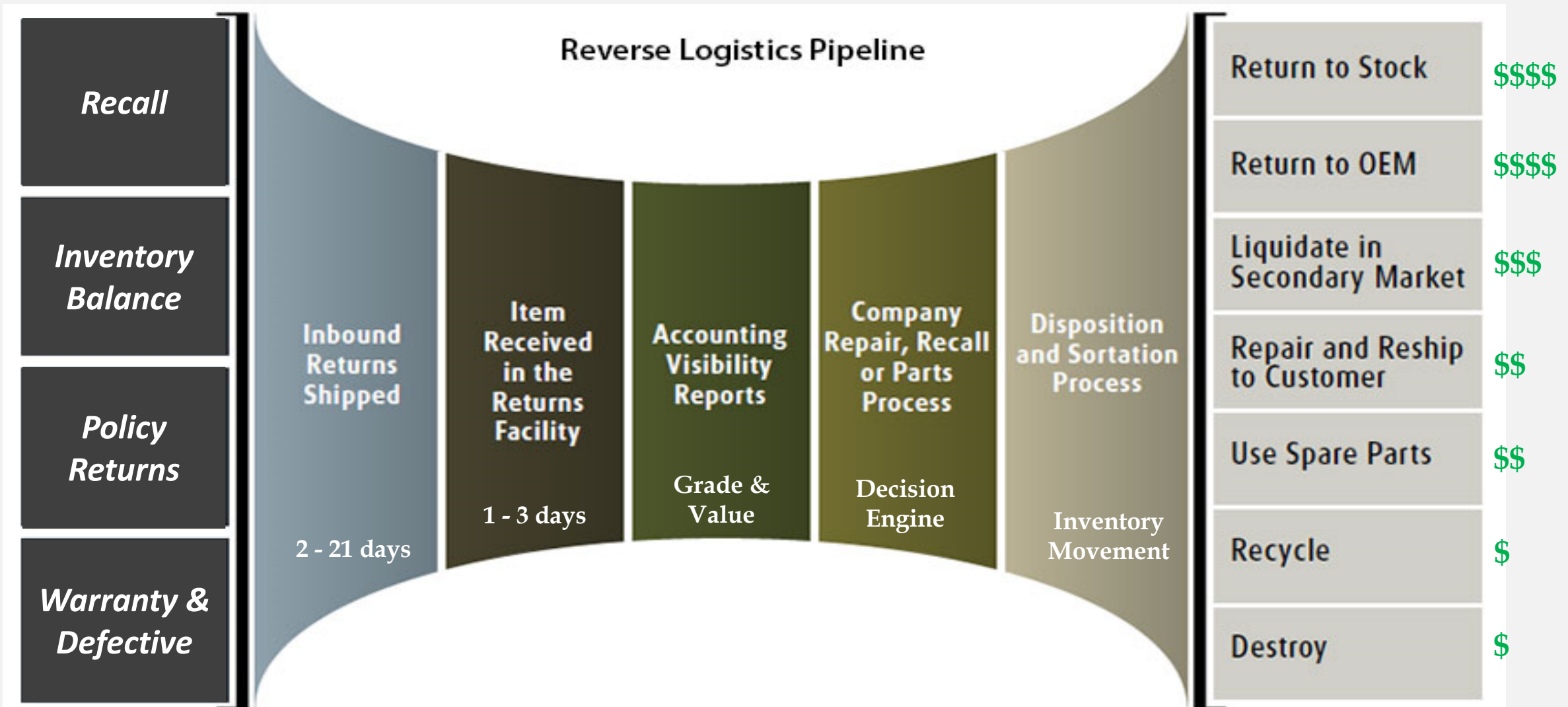
 <p>20% Received damaged product</p>	 <p>22% Product received looks different</p>	 <p>23% Received wrong item</p>	 <p>35% Other reasons</p>
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27% of shoppers would purchase an item that costs more than **\$1,000** if offered free returns as compared to **10%** who would purchase otherwise

58% want a hassle-free "no questions asked" return policy



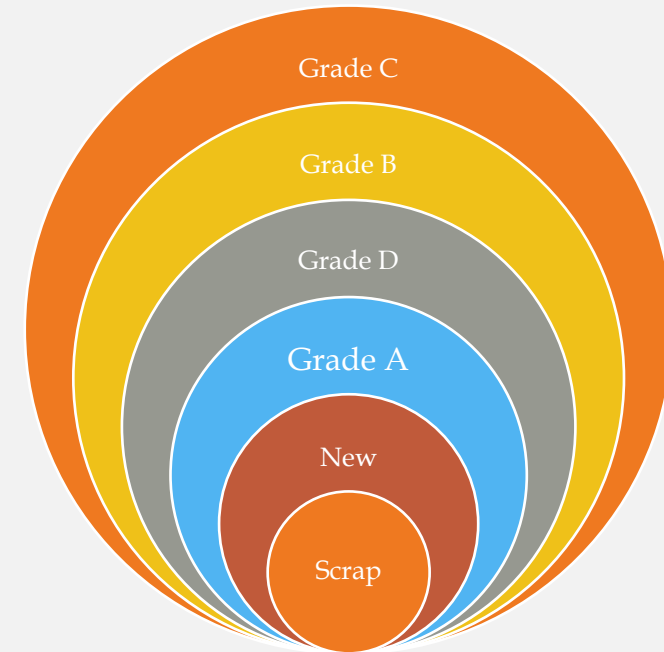
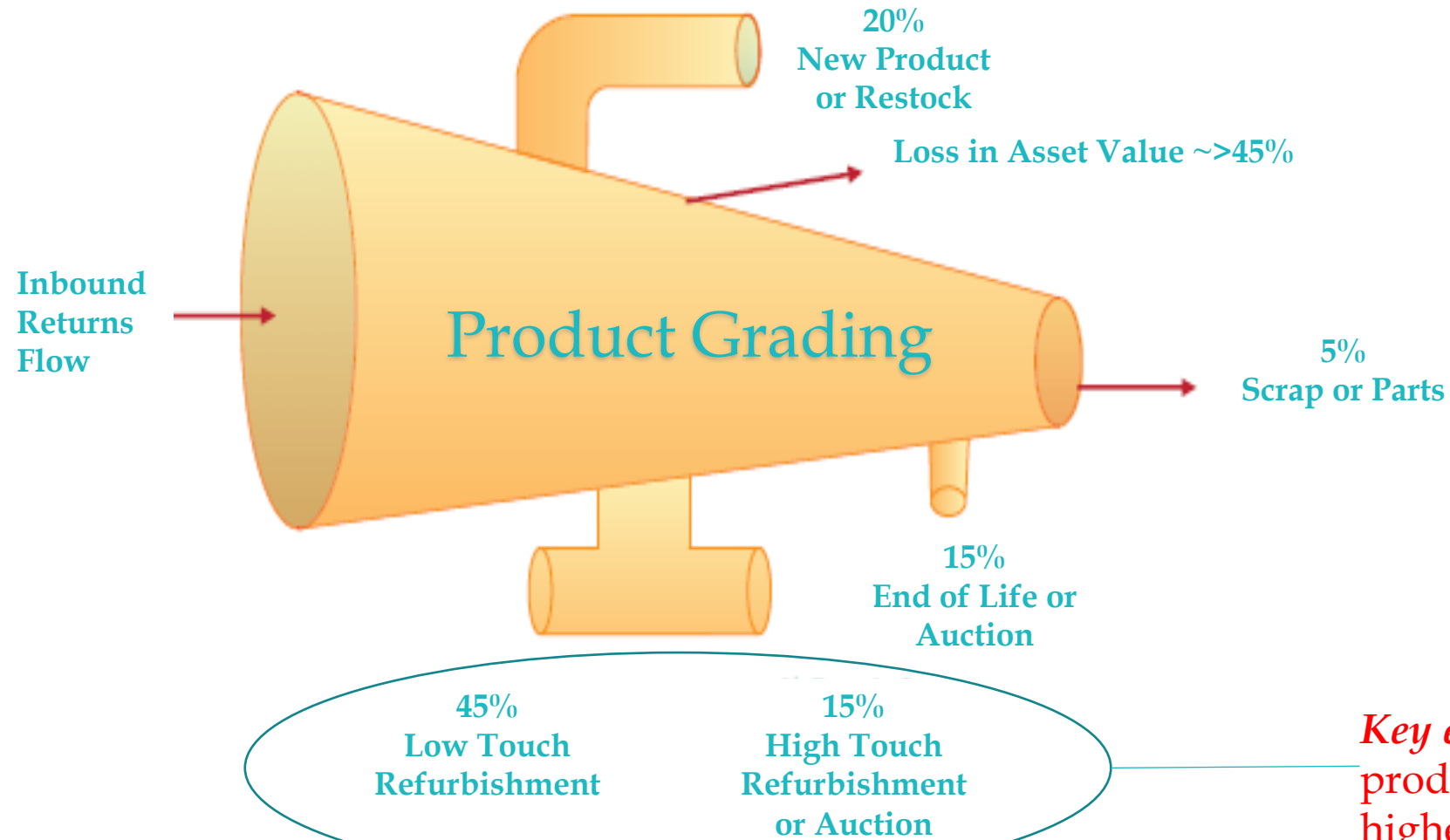
The Return Process Pipeline



Key Elements and Metrics

- **Disposition cycle time:** Cycle times can be an important measure of reverse logistics. The more standardized and streamlined the processes are, the shorter the cycle time should be. Products lose value daily....time is money!
- **Amount of product reclaimed and resold:** What percentage of product that moves to the reverse logistics system is re-used vs. resold? How much value is recaptured? Do you have a sales channel for your returned goods?
- **Percentage of material recycled:** This metric tracks the percentage of product in the reverse logistics stream that is recycled in an appropriate manner. What is your yield in your process?
- **Waste:** How much product and secondary materials are moved to landfills, incinerated, or disposed of as waste? The objective is to minimize product in the waste streams. How Green is your company?
- **Percentage of cost recovered:** Are you maximizing the profitability of product that did not sell well or has been returned by consumers? Do you have a multi sales channel option or approach?
- **Per item handling cost:** A cost-per-touch type of metric can be readily computed by dividing total facility costs per month by the number of items processed. This is also a valuable way to compare the efficiencies of different facilities. How will you benchmark various competitors?
- **Total Cost of Ownership:** What is the total cost of ownership related to originally acquiring the product, reselling it, bringing it back as a return, and moving it through a secondary market or placing it in a landfill? How will you calculate your COGS and what is worth additional investment?

Reverse Logistics Value Pipeline



Key element - How to move product from lower grades to higher grades (more value)

Key Element - Valuation

What is your returned inventory worth? **This will drive your next best action.**

GAAP - Inventory can be valued at "Lower of Cost or Market (LCM)"

Net Realizable Value (NRV)

= Estimated Selling Price - Cost of processing and disposal (how much the business can sell the product for)

Market = Current Replacement Cost (how much the business would pay to obtain the same product right now)

If Current Replacement Cost > Net Realizable Value (NRV),
then NRV is Market.

If Current Replacement Cost < (NRV - Normal Profit Margin),
then (NRV - Normal Profit Margin) is Market.



Key Considerations:

- Is Refurb Cost > Cost of New?
- Is Cost of New - Auction value > Refurb Cost
- Is Return Value + Cost to Improve < Auction
- Is Refurb cost + Margin (loss) > Auction

Key Element – Refurbishment and Re-Use

■ Remanufacturing and Refurbishment

The advantage of Refurbishment is felt through cost savings, grade improvement and value recovery.

✓ Five categories of remanufacturing and refurbishment:

Make the product reusable for its intended purpose	Retrieving reusable parts from old or broken products	Reusing parts of products for different purpose
1) Repair 2) Refurbishing 3) Remanufacturing	4) Cannibalization	5) Recycling

What are the 5 “R’s”?

Remanufacture: An industrial process that re-captures the intrinsic value of products and associated parts & materials.

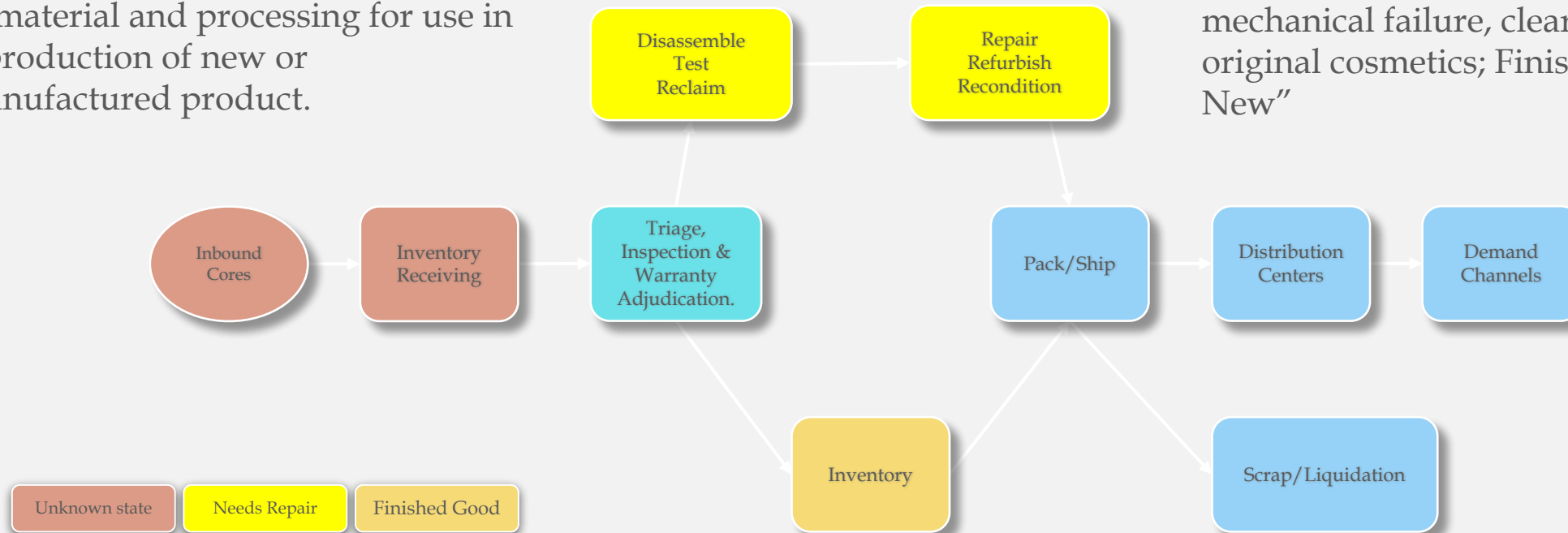
Reuse: Simply reusing the product after data clear & light cleaning

Repair: Fixing a functional or mechanical failure, data clear, no cosmetic enhancement.

Refurbish: Fixing a functional or mechanical failure, clearing data, some level of cosmetic enhancement.

Re-claim: Extracting the individual raw material and processing for use in the production of new or remanufactured product.

Recondition: Fixing a functional or mechanical failure, clearing data, restoring original cosmetics; Finished product is "Like New"



Remanufacture: High Level Process Overview

Receipt & Verification

- Make, model, date received
- TAT / Aging clock begins

Triage & Inspection

- IW vs OOW
- Functional & Cosmetic condition
- Next Best Action

Repair / Refurb

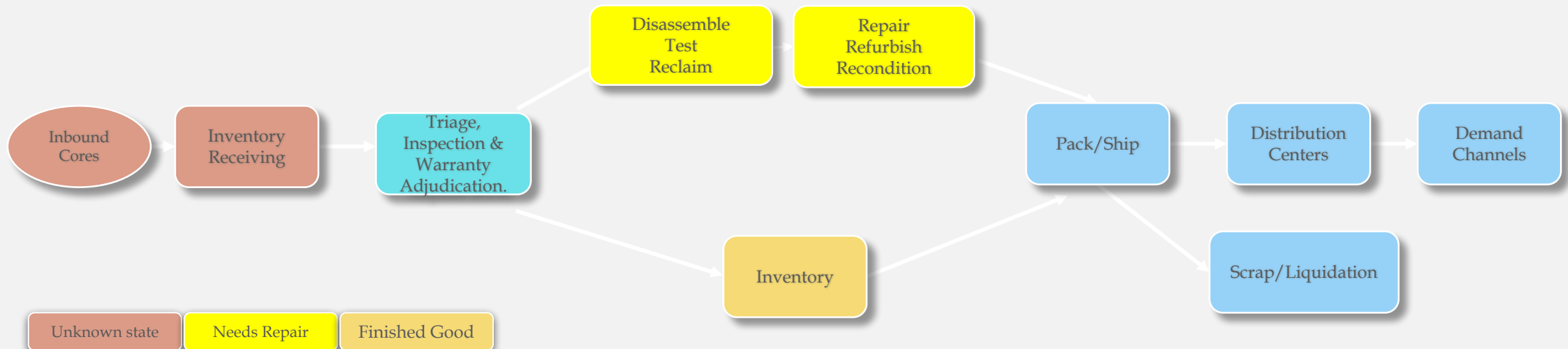
- Disassembly
- Parts reclaim
- Test
- Assemble
- Final Test

Quality

- AQL
- In-line & OBA
- Functional & Cosmetic

Pick / Pack / Ship

- CPO Kitting?
- Bulk?
- End User?



Key Elements and Metrics

- **Demand/Supply Forecasting:** How many finished goods do you require per day, week, month? Based on your current Yield, how many Cores will you need to send? Your success will depend on your ability to provide accurate and timely Demand and Core Supply forecasts.
- **Product/Process Yield:** What percentage of your Core Supply is returned to Finished Goods? What's possible, vs model assumptions, vs actual results? How will you react to an intra day, week, month change?
- **Reclaim Rate:** What percent of BOM parts are you able to recover or re-use? What is the Reclaim Rate of your highest cost components?
- **Production/Forecast Attainment:** How much of your Demand is being produced? What's the root cause of any negative variances you may have? How will you react to Staffing issues and/or parts delivery delays? What pre-determined business rules are needed, how is the decision made and when?
- **WIP:** What's the current state of workable material that's currently available for production? Is the material moving as planned?
- **DBR/BER Rate:** Damaged Beyond Repair means the production can not be repaired. Using a car analogy, it's totaled! Beyond Economical Repair means the product can be repaired but the cost no longer makes sense – there is a more profitable action to take (liquidate, etc).
- **TAT:** Turn Around Time – Number of days from Core receipt to Finished Good or Scrap.
- **Cost Per Repair (CPR):** Your total cost divided by total Finished Goods.
- **Bounce:** Percentage of finished goods that are returned by the end user within 30-90 days post sale.

Strategic Considerations

Who and Where?

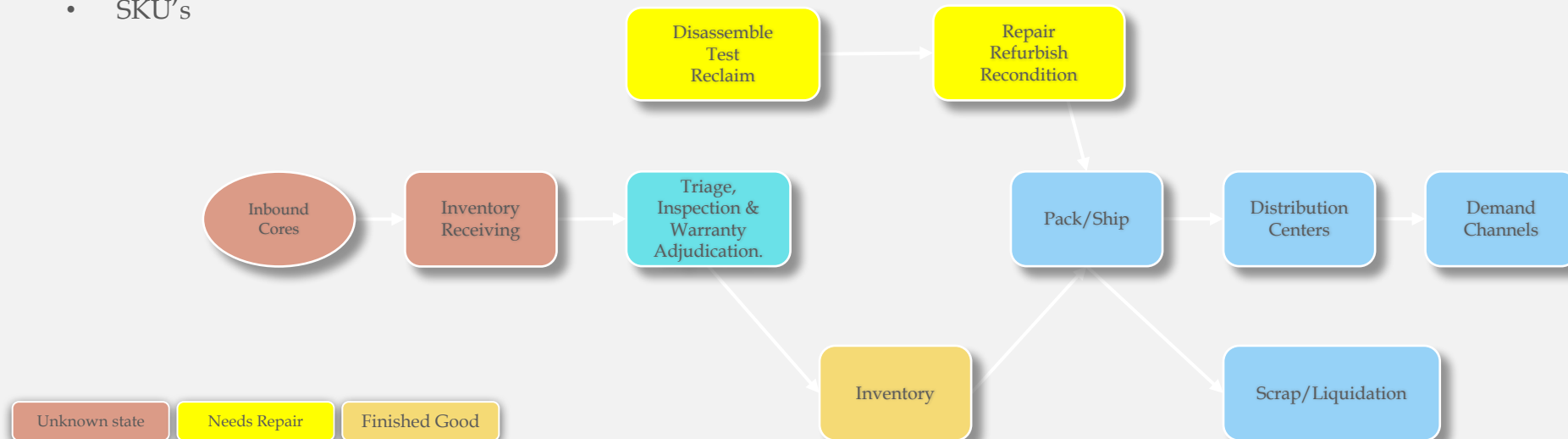
- ✓ OEM vs certified repair facility?
- ✓ Domestic, near shore, or off-shore?
 - TAT
 - Labor & Transport cost
- ✓ Single source or multiple suppliers?
- ✓ Reclamation
 - In-house vs outsourced
- ✓ Certifications
 - OEMs
 - SKU's

Roles & Responsibilities?

- ✓ Who will have “first touch” on returned product?
- ✓ Who will Grade or assign current value?
- ✓ Who will Scrap material you couldn't repair or recover?
- ✓ What's the “next best action” and who is making that decision?

Scope?

- ✓ Yield Only
 - Low cost, Low yield
- ✓ New OEM, used OEM, or 3rd party
 - Max yield, Higher cost per unit
 - Contracts?
 - Lead Times?
 - Supplier qualification & reliability



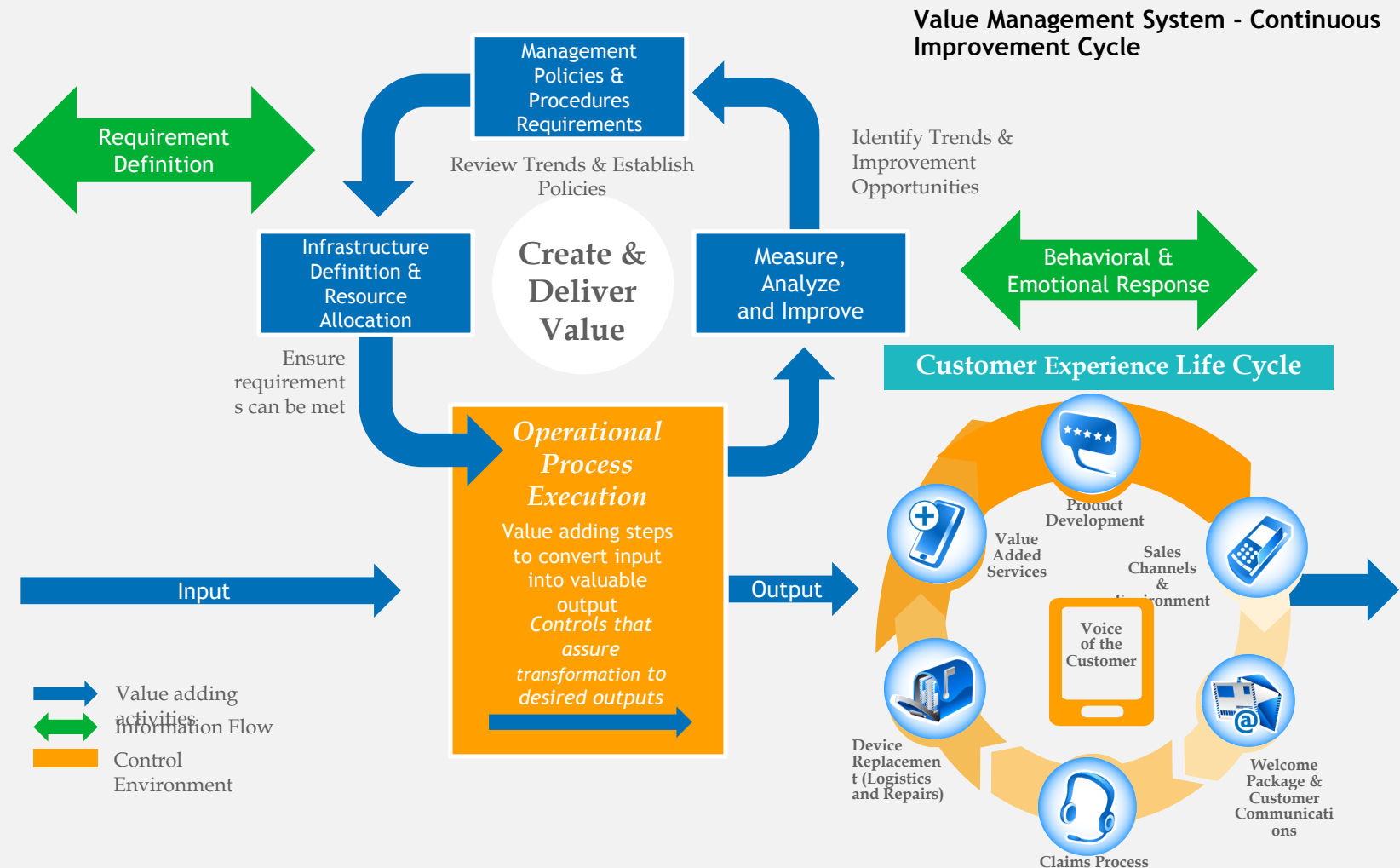
Reclamation - Maximizing overall Value Recovery

Serious Commitment

- ✓ Requires deep knowledge of the product including materials, specifications and tolerances, its operating environment, and the associated failure modes.
- ✓ Dedicated Engineering resources
- ✓ Capital equipment
- ✓ Time and Experience

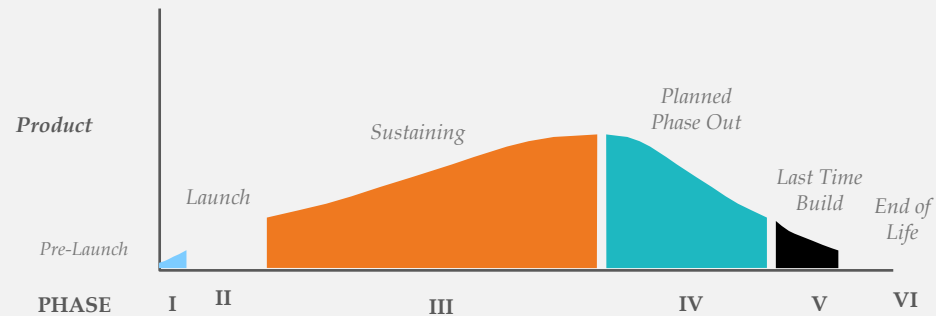
Significant Benefits

- ✓ Saves the cost of buying new OEM replacement parts.
- ✓ Creates a secondary parts source: Protect against supply delays / shortages that can shut down production
- ✓ Improves overall product Yield
- ✓ Avoids waista



Forecasting and Planning

Product Life Cycle Management

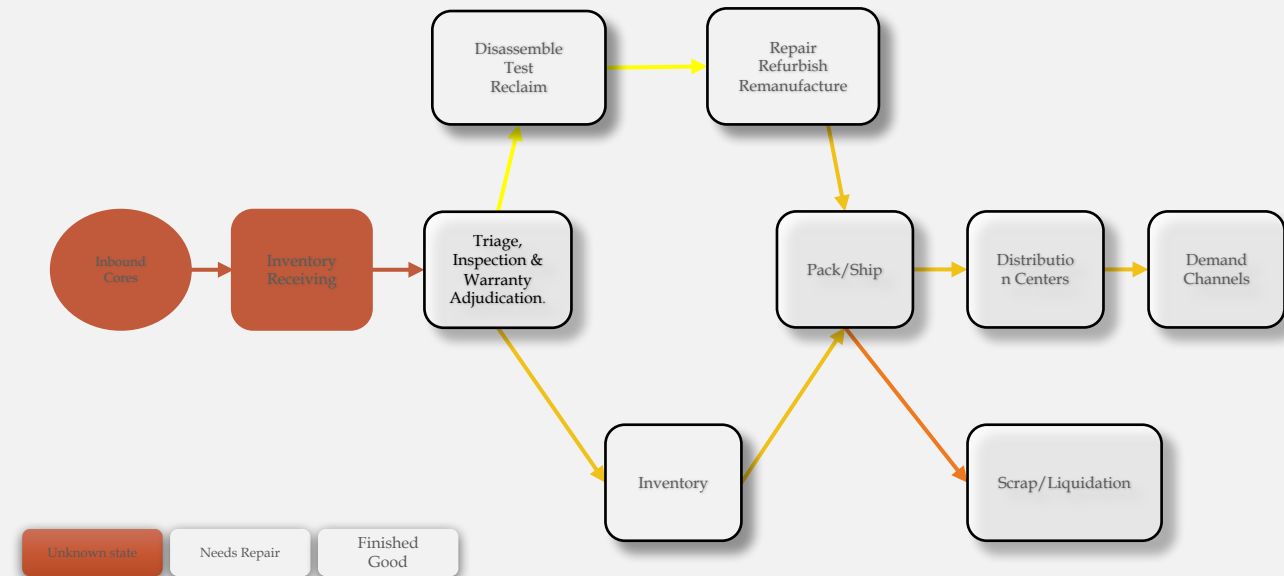


Core Supply Forecasting

- ✓ Core condition
- ✓ Yield assumptions
 - Product
 - Parts
- ✓ Predictability & Timing

Demand Planning

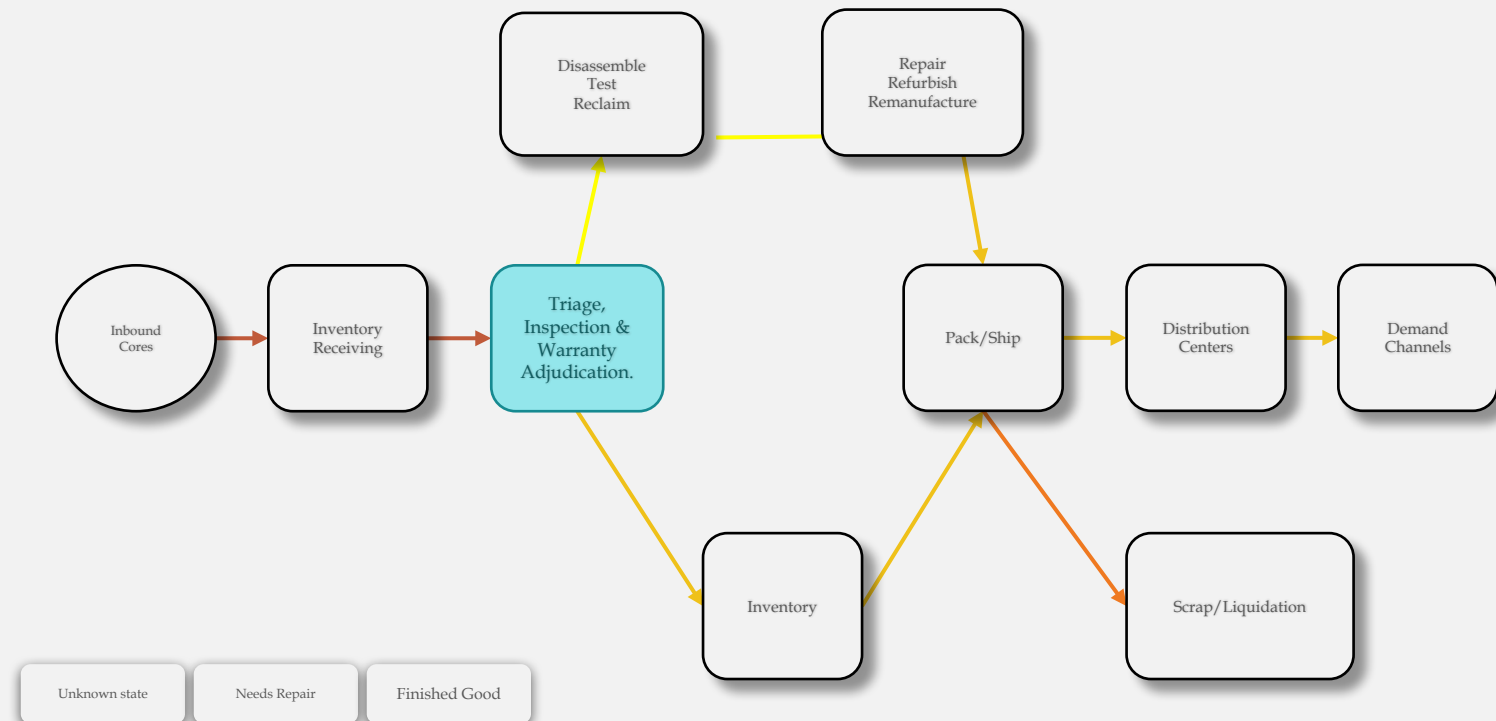
- ✓ Rolling 90/60 demand view
- ✓ Financial commitment?
 - Parts lead times
 - Capacity planning / staffing



Triage & Inspection: Your Requirements will drive Yield, Cost, and Customer Satisfaction

Functional & Cosmetic Specifications

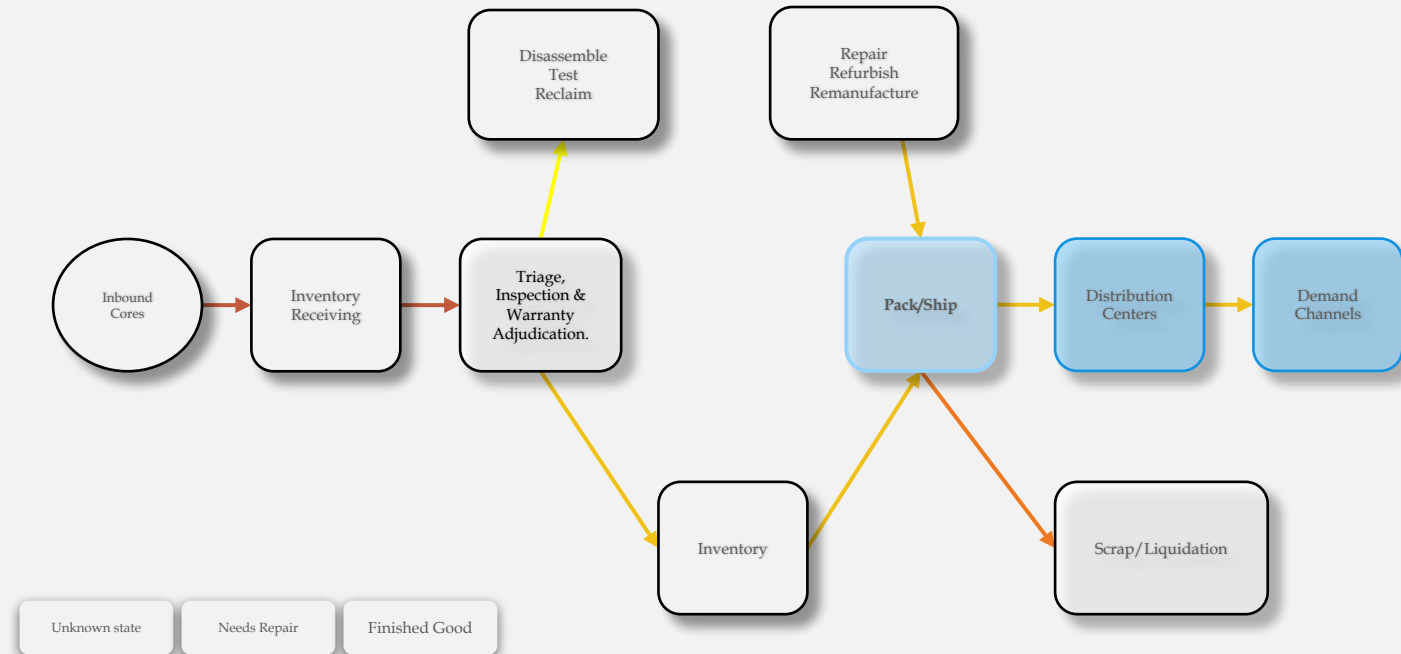
- ✓ Like New or Lightly Used?
- ✓ What's the definition of Lightly Used?
- ✓ Balancing customer sat with Yield / Cost.
- ✓ What's an acceptable Bounce rate?
"Sometimes you need to cross the line to find it....."
- ✓ Calibration and audit
- ✓ Evaluating the need for change daily



Distribution & Shipping

Distribution

1. Cascading distribution assignment
2. Multi-tiered customer shipments
3. Volume shipping and personnel cost savings
4. Full shipment quality audit
5. Systematic order consolidation
6. Broad spectrum of shipment processing
 - Pick/pack, pick to order, picking waves for high volume, and pick and hold options



Summary and Conclusion

How can Reverse Logistics work for you?

- Dedicated focus on the process
- Be efficient and consistent in your product handling
- Have a return policy and stick to it
- Product value drives next available action
- Choose refurbishment options to match your market
- Being Green doesn't have to cost you money



Reverse logistics is not simply a matter of moving the product the opposite way.