Leveraging the Potential of Closed Loop Supply Chains

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V FORO INTERNACIONAL **PILOT**

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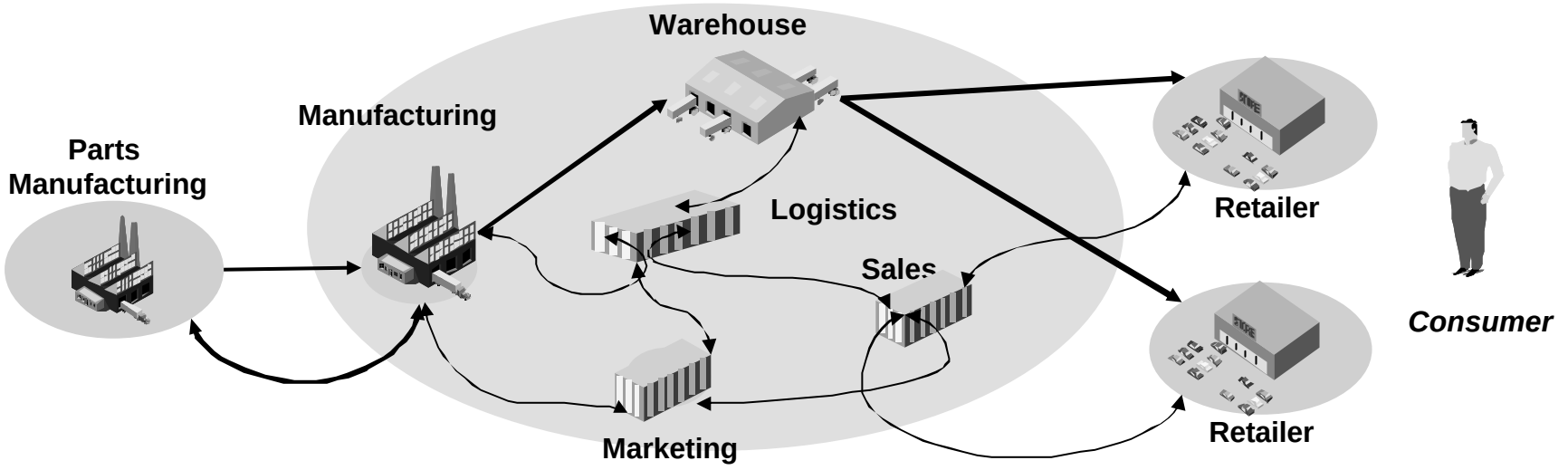
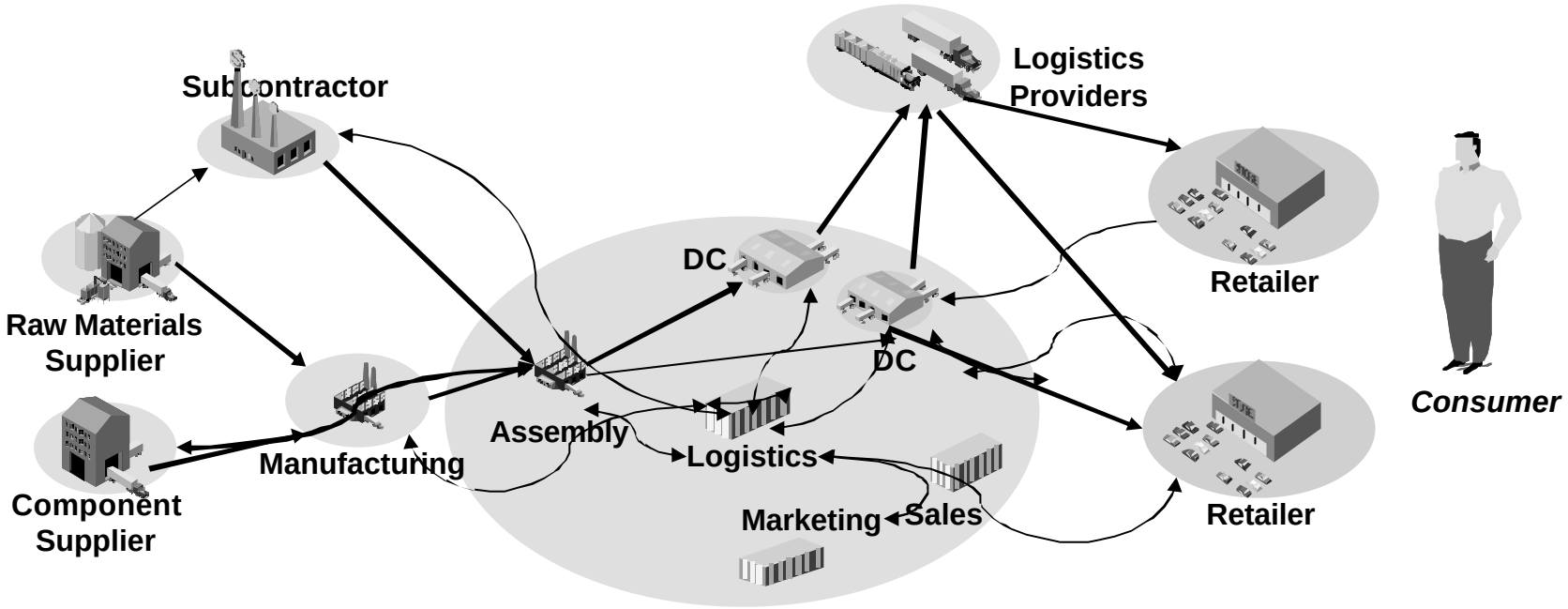
Supply Chains: The expanding scope

- When we started talking about supply chain management in the late 1980s or early 1990s , supply chains were simple, relatively linear in structure

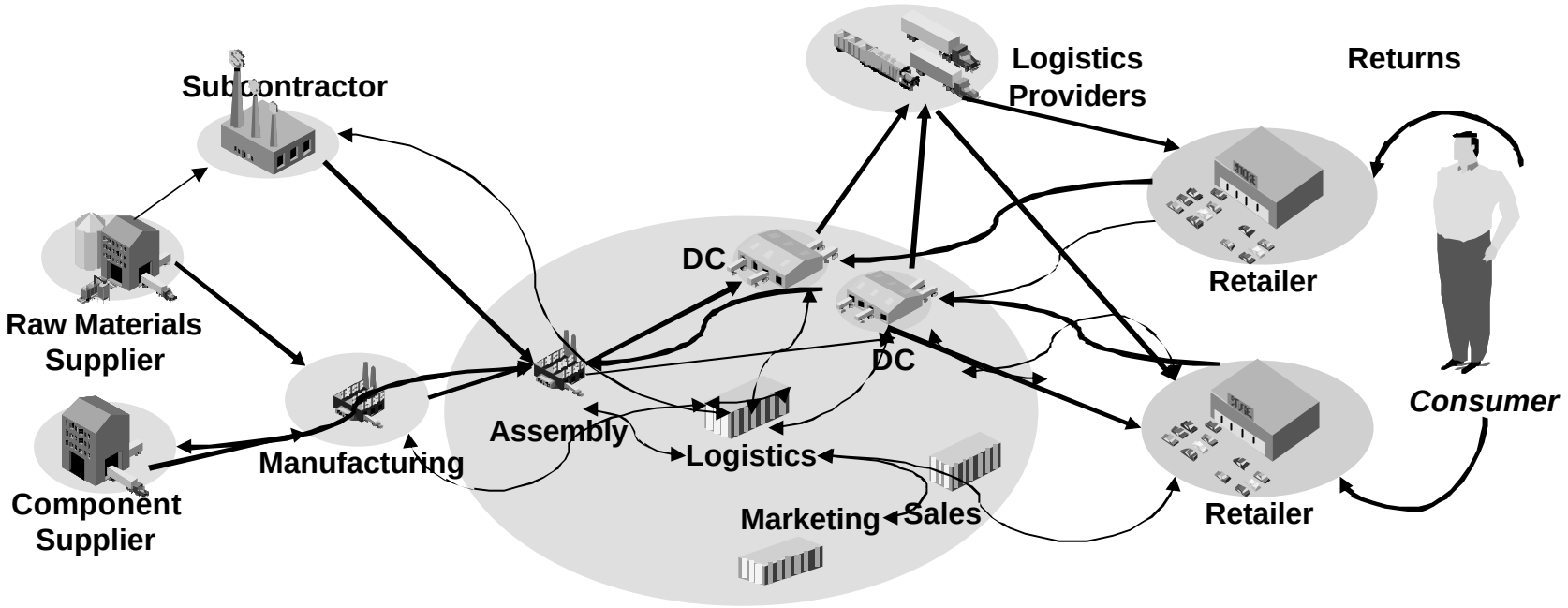


Supply Chains: The expanding scope



- In the last decade, supply chains became fairly complex and scope and function

Supply Chains: The expanding scope

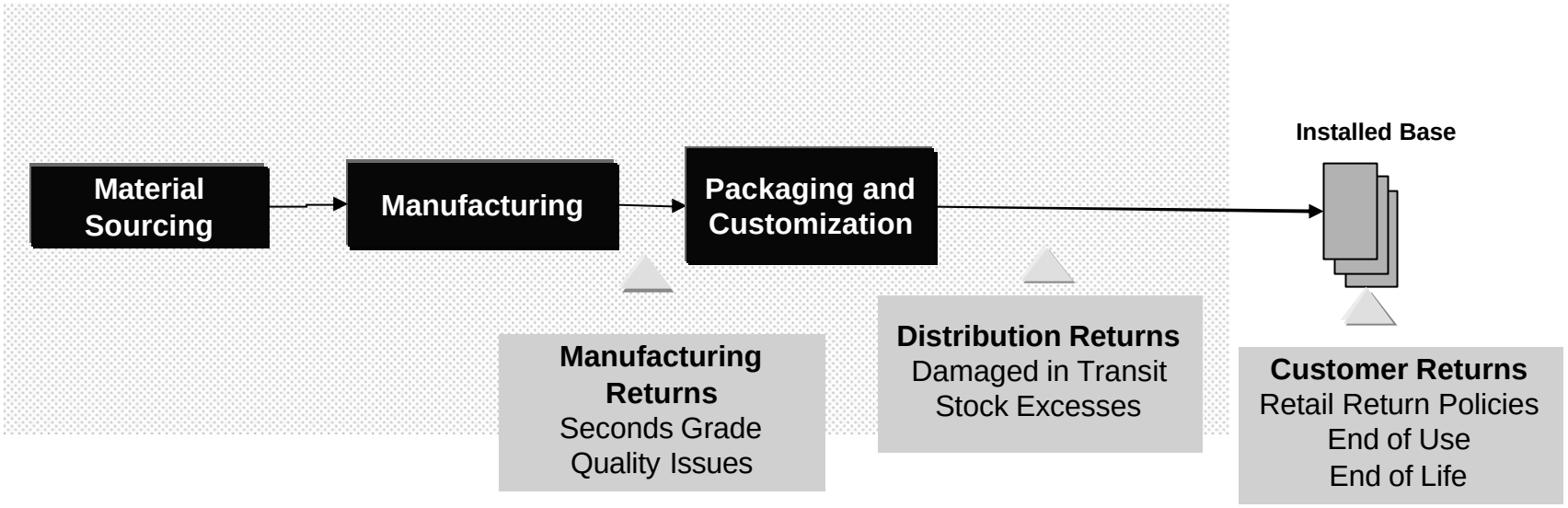


We are now heading towards closing the loop : capturing the value in the return flows utilizing the existing logistics setup

Agenda:
A Closed Loop Supply Chain Audit

Return Origins	Return Handling	Reverse Logistics	Value Recovery	Design for CLSC
What generates returns in your supply chain ? How can you optimize the returns?	Return handling : In house or outsourced ? Disposition decision: early or late ?	Shared transportation /warehouses with forward chain or separate ? Reverse chain design issues	Jobber/Liquidator or self created secondary market? Primary market segmentation to avoid cannibalization	Product Design to facilitate closed loop supply chain efficiencies Process Design to exploit closed loop supply chains

1. Return Origins in the Supply Chain



Origins of reverse flows

Channel	End Customer
Transit Damage	Liberal Return Policies
End of Season/ Shelf Life	Warranty and Repair
Stock Balancing and Inventory Adjustment	End of Life or End of Use
Reusable packaging or totes	Product Recalls
Manufacturing Defects	Corporate Citizenship returns Voluntary old product take back programs
Demo units	Reusable packaging or totes

Sample return percentages

Industry	Percent
Magazine Publishing	50%
Book Publishers	20-30%
Book Distributors	10-20%
Greeting Cards	20-30%
Catalog Retailers	18-35%
Electronic Distributors	10-12%
Computer Manufacturers	10-20%
CD-ROMs	18-25%
Printers	4-8%
Mail Order Computer Manufacturers	2-5%
Mass Merchandisers	4-15%
Auto Industry (Parts)	4-6%
Consumer Electronics	4-5%
Household Chemicals	2-3%

- **Source: Rogers and Tibben-Lembke, 1998, *Reverse Logistics Trends and Practices***

Customer returns due to generous return policies

- US retailers typically provide a 30-60-90 day return policy on most non-perishable products
- It has emerged out of competitive pressures/customer expectations and not regulatory influences
- Customers have become conditioned to returning products if they don't like them after purchasing
- In certain categories up to 70% of returns can be classified as NAD (No Apparent Defect)/NDF (No Defect Found)
- The "Cocktail Dress" return
- Online retailing has drastically increased customer returns
- European retailers are slowly catching up to the "no-quibbles" return policy

‣ Picture Source: Sciarrotta 2003, *SCM Review*, "How Philips Reduced Returns"

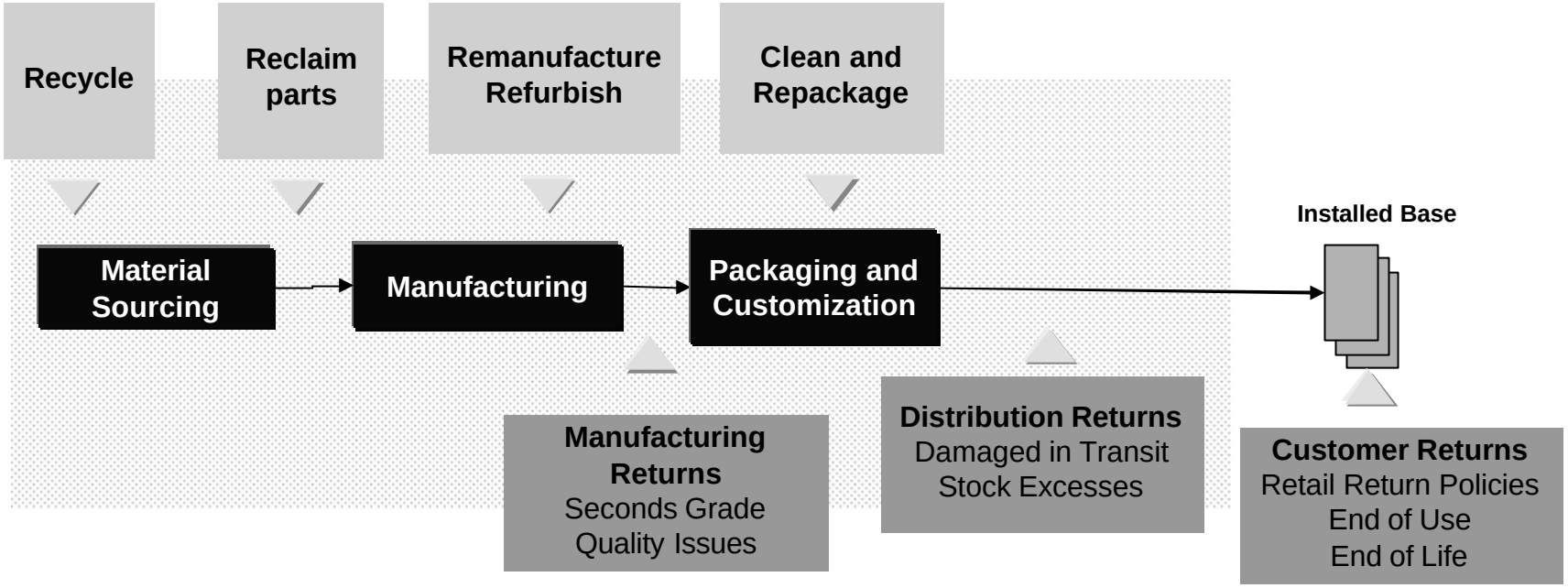
Customer returns due to generous return policies

- Manufacturers provide retailers an option to return the product at the end of its season by deducting a “stocking fee”
- Any customer returns are however taken back at full credit by the manufacturers
- Retail personnel often have large sales commission components (not return adjusted) in their salaries
- **Incentive misalignment for reducing returns**
- Zero return programs of manufacturers
- Partial refunds to customers prior to detailed verification of any missing components
- Restocking fees – Circuit City

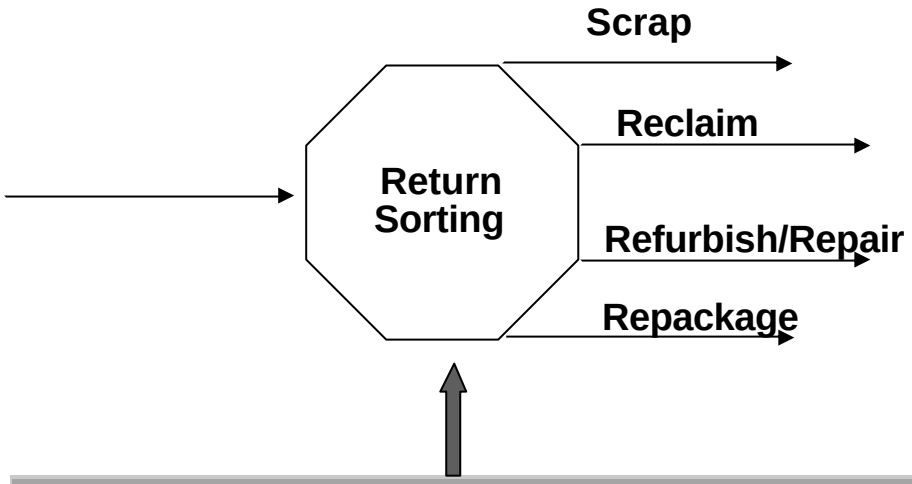
End-of-Life Returns

- Extended Product Responsibility (EPR) and product take back legislations
- WEEE directive
- Regulatory framework in EU / Spain still “relatively flexible” on return handling
- Early innovators in this area can become examples of excellence for policy makers and other industrial partners
- Cross-industry consortia are emerging – competing companies collaborate to achieve economies of scale in reverse logistics
- Important to distinguish between end-of-life and end-of-use returns

Return Value Recovery Options in the Supply Chain



Value Recovery Options or Sorting Models



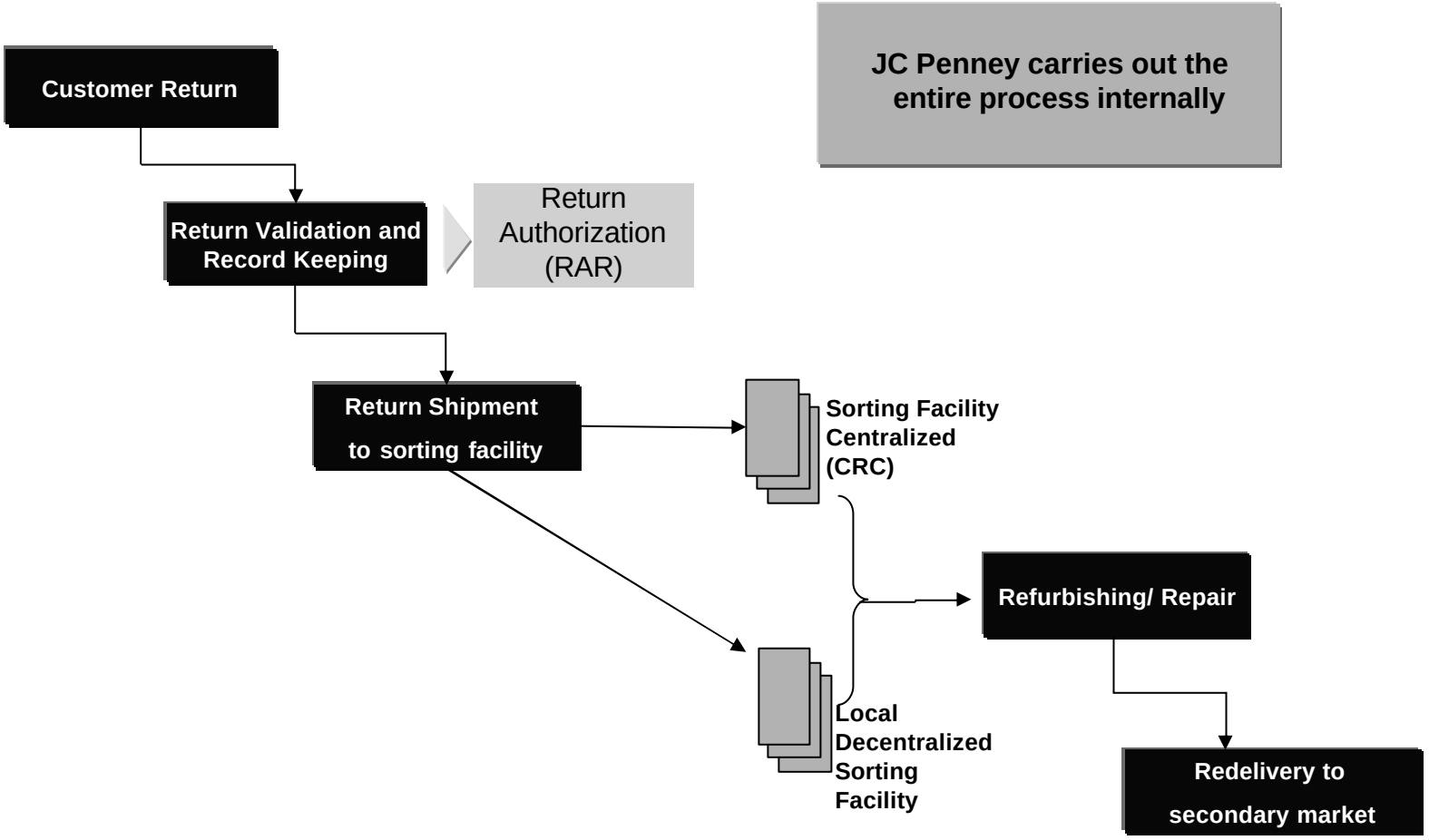
- This model hinges upon a robust Activity Based Costing methodology
- The cost and accuracy of return sorting can be improved by fairly simple design improvements
- Controlling the timing of the return can be a useful tool in efficient sorting of end-of life-returns : Lease programs

- The design issues are addressed again in a later slide

Centralized vs. Decentralized Sorting

	Early Sorting	Late Sorting
Cost	■ Higher cost of maintaining decentralized sorting facilities ■ Unskilled personnel may commit sorting errors	■ Economies of scale in sorting ■ Economies of scale in redistribution ■ More uniform condition mix
Time	■ Good product can be quickly reverted back into the forward SC ■ Beneficial for time-sensitive value products	■ End-of-Life Returns ■ If NDF/NAD percentages are estimated to be low

Return handling: Outsourced or Inhouse ?



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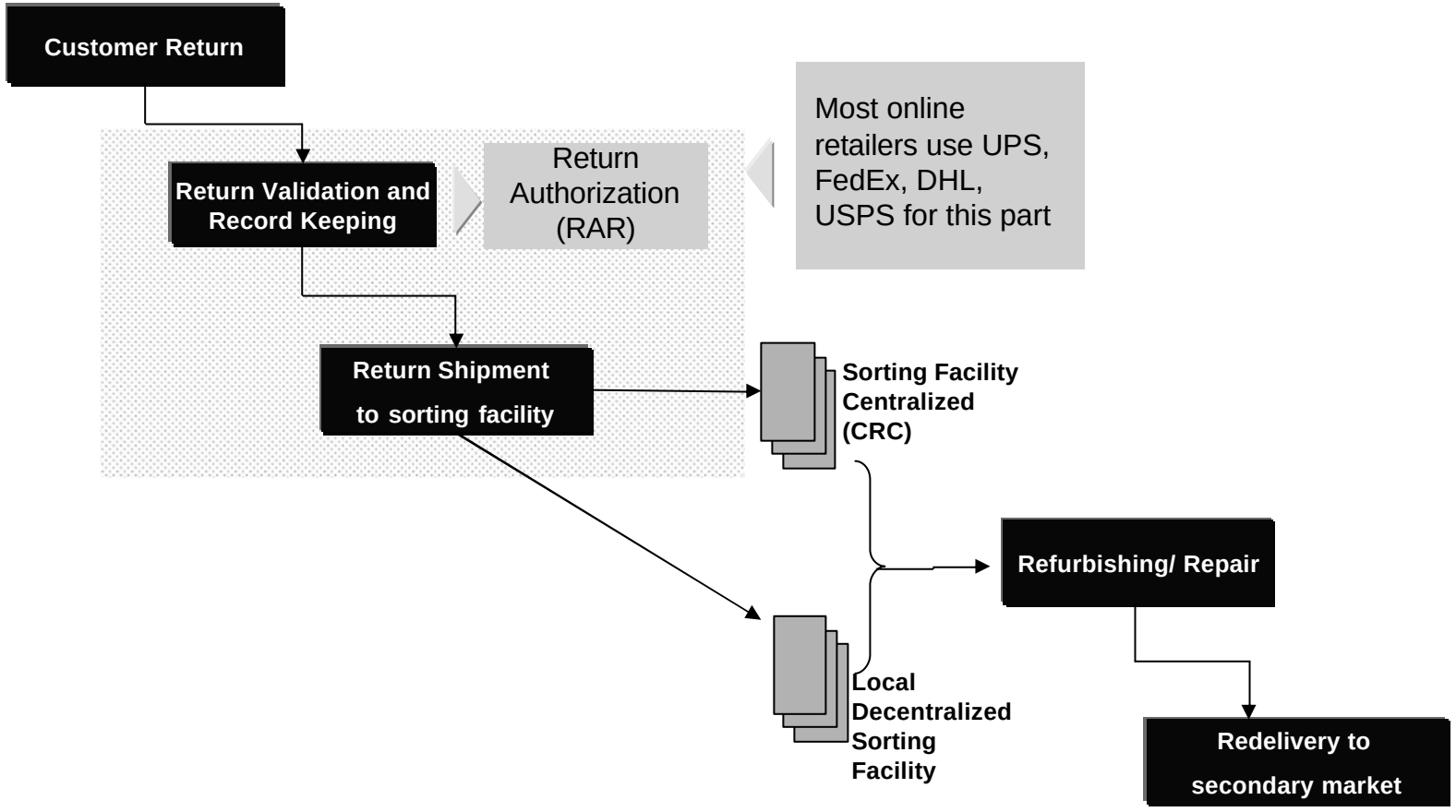

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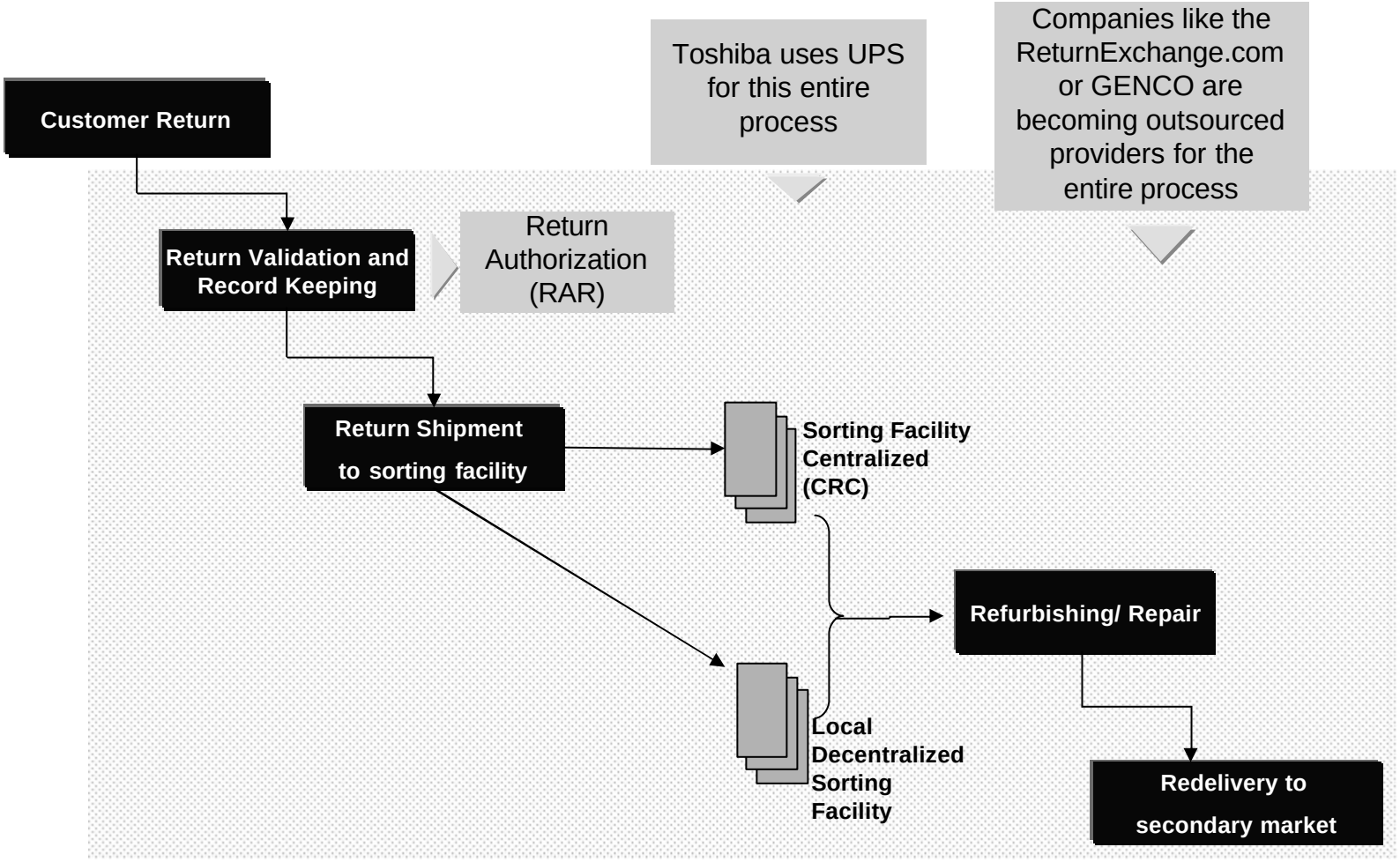


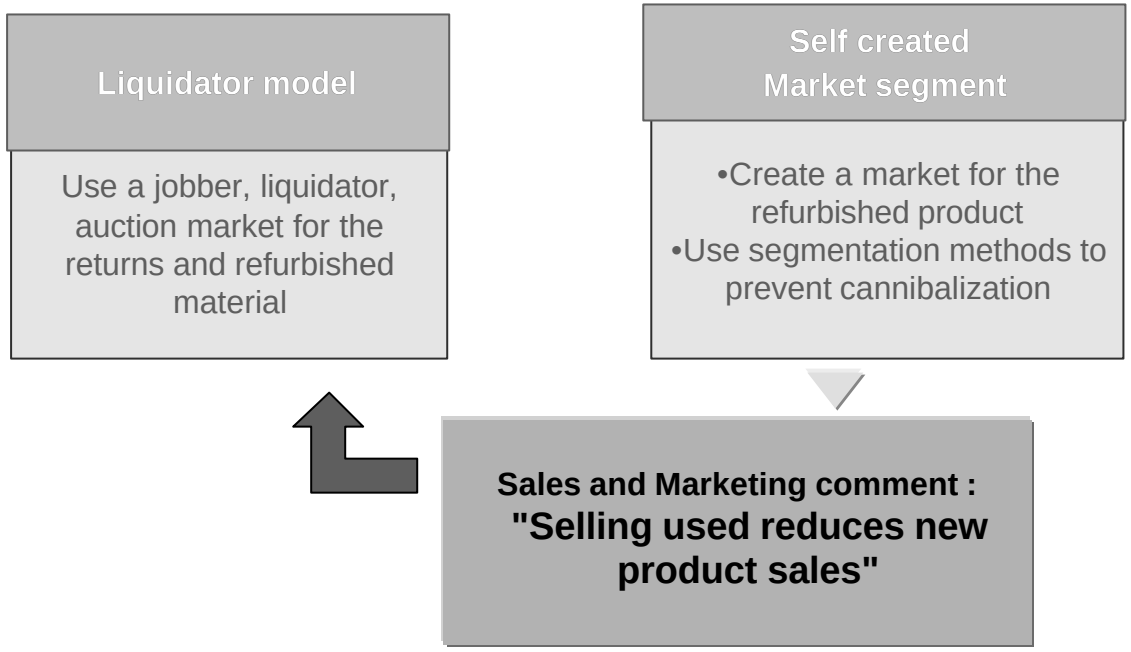
Return handling: Outsourced or Inhouse ?

- 80% of US retail returns are outsourced
- In Europe this figure is closer to 15%

  Source: DataMonitor Report

- ? ?
- Clearly the volumes are higher in the US for the retailers/manufactures to do in-house return handling
- The emergence of specialized return handling companies like GENCO in the US has triggered the jump to the “returns outsourcing” bandwagon

Secondary markets: creating value through market segmentation



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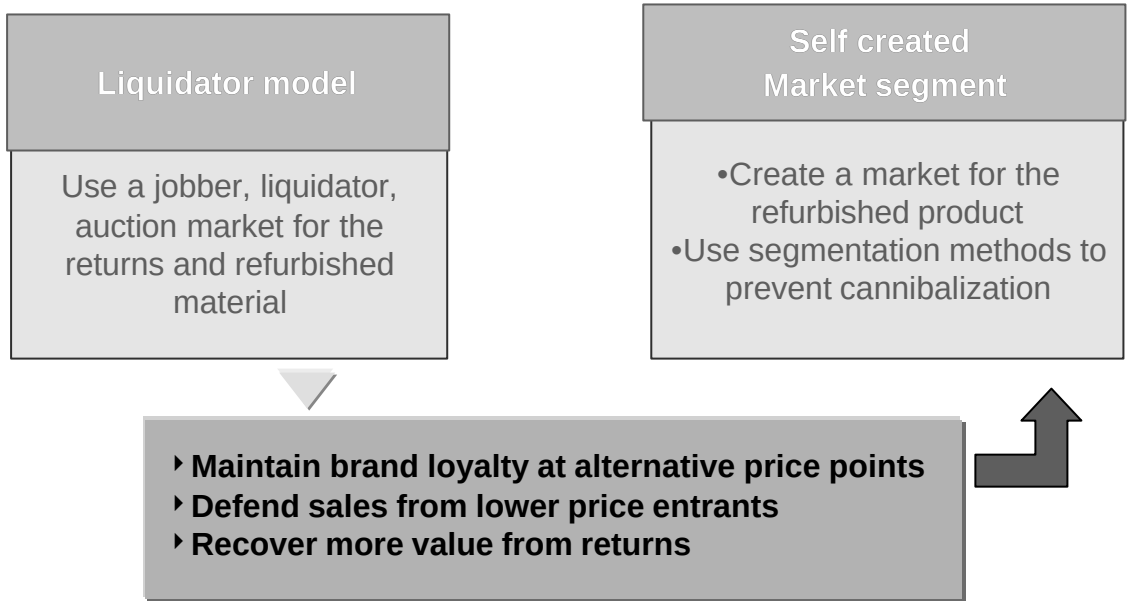
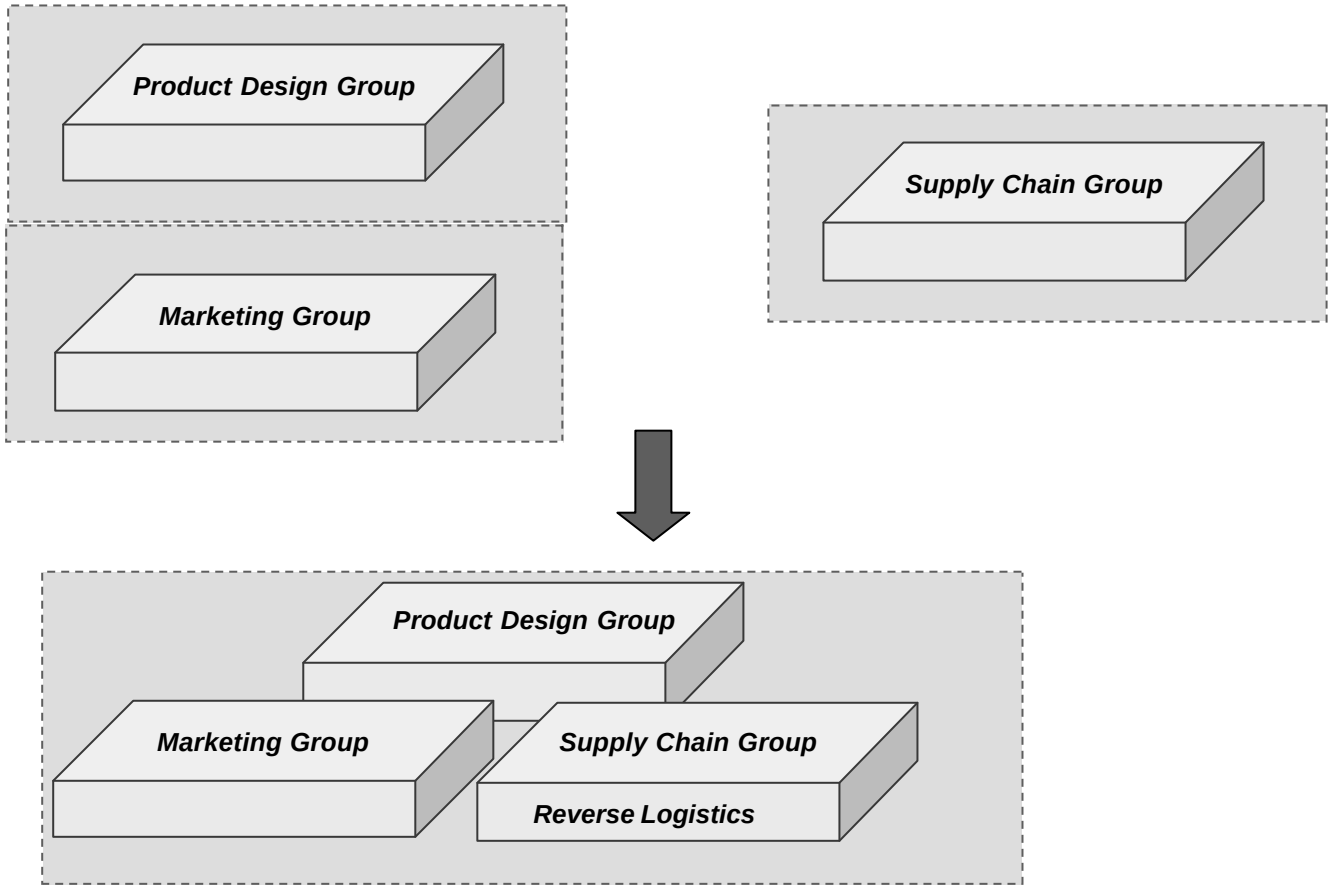


- **Optimal level of price differential between the two markets ?**
- **Segment differentiators: warranty policy, brand extension etc.**
- **No studies that effectively analyze the effects of cannibalization**
- **HP, Dell, IBM, Bosch, US Army and many others in fact get a small yet not insignificant revenue from the self-created secondary market segments**

Closed Loop Supply Chains and Product Design



We need models to demonstrate the value of small design improvements on the reverse supply chain

Design improvements for CLSC: examples

- Lucent-Bell Labs base stations with multiple vs. single bandwidth
- Bosch motors EDL
- HP Printers with print counters
- HP Printer/Fax/Scanner combo packaging redesign
- US Army Tanks- Performance Driven Logistics
- Nintendo games repackaging to validate returns
- Sharp VCRs with easier setup features reduced returns
- Estee Lauder's technology enabled sorting system
- German computer remanufacturing- Covertronics's software to track configuration
- RFID and 2D barcode potential

Conclusions

- **The key driver for closed loop supply chains**

  Profits

  ~~Regulatory compliance~~

- **Significant value remains to be recovered from closing the loop**
- **Models to build a stronger business case for closed loop supply chains in different industries**
- **Ishikawa (cause-effect) diagrams for returns**
- **“Optimize” the timing and quantity of returns**
- **Develop a secondary market with a clear segmentation strategy**
- **Involve reverse logistics people in the (interdisciplinary) product design teams**
- **A closed loop supply chain to serve as a benchmark**
  - Academia-Industry-Policy Maker-Technology Enabler as partners