**Supply Chain Management (Reverse)**

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| **Reverse Supply Chain:** Material flows upstream. |

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| **Supply Chain**:  🡨 Flow of Information 🡨   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Supplier | 🡪 | Manufacturer | 🡪 | Distributor | 🡪 | Retailer | 🡪 | Customer |   🡪 Flow of Material 🡪 |
| **Reverse Supply Chain**:  🡨 Flow of Material 🡨   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Supplier | 🡨 | Manufacturer | 🡨 | Distributor | 🡨 | Retailer | 🡨 | Customer |   . . . |

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| A basic Reverse Supply Chain process: |
| Disposition 🡨 Evaluation 🡨 Documentation 🡨 Receiving |

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| Receiving Material upstream can be caused by: | |
| 1. | “Returns” which are triggered by downstream agents. |
| 2. | “Recalls” which are initiated by upstream decisions. |
| 3. | “Recycle” which include cooperative policies  between upstream and downstream parties. |

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| Disposition of Material to secondary market can include: | |
| 1. | Reuse |
| 2. | Remanufacture or Refurbish or Repair |
| 3. | Recycle |
| 4. | Disposal or Scrap |

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| A basic Reverse Supply Chain strategy can include: | | | | |
| Initial Asset Value | | | | |
| 🡪  🡪  🡪 | Recovery Cycle Time  Recovery Cycle Cost  Recovery Asset Value |  | 🡪  🡪 | Efficient (Lean) Chain (Centralized)  Responsive (Agile) Chain (Decentralized) |

**Primary Market vs. Secondary Market**

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| Reuse | No modification.  Return to Primary or Secondary Market. | Refunds or Exchanges |
| Repair | Modifications applied.  Return to Secondary Market. | Repair or Maintenance |
| Recycle | Components, parts or material retrieved.  Provide to Secondary Market or other markets. | Spare parts or Inventory. |
| Dispose | Destroy, incinerate or scrap.  Eliminate or provide to scrap market. | Landfill. |

**Customer to Manufacturer**

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| *Primary*  *Market* | Supplier | 🡪 | Manufacturer | 🡪 | Distributor | 🡪 | Retailer | 🡪 | Customer |
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**Customer to Retailer to Manufacturer**

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| *Primary*  *Market* | Supplier | 🡪 | Manufacturer | 🡪 | Distributor | 🡪 | Retailer | 🡪 | Customer |
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**Customer to Third-party to Manufacturer**

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| *Primary*  *Market* | Supplier | 🡪 | Manufacturer | 🡪 | Distributor | 🡪 | Retailer | 🡪 | Customer |
|  |  |  | ↑ |  |  |  |  |  | ↓ |
|  |  |  |  | ← | ← | Third-party | ← | ← |  |

**Centralized**

**Cost – Large Inventory – Lean Supply Chain – Postponement – Functional Products**

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**Decentralized**

**Service – Quick Response – Agile Supply Chain – Early Differentiation – Innovative Products**

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| **Strategic Reverse Supply Chain Management** | |
| *Opportunities* | *Barriers* |
| Increased Customer Satisfaction  Secondary Markets  Enhanced Information  Sustainability | Brand Erosion  Logistics Costs & Low Profit Margins  Coordination & Top Management Commitment  Minimal Legal Issues |

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| **Green**  Reverse Supply Chain  Management | **Lean**  Reverse Supply Chain  Management | **Agile**  Reverse Supply Chain  Management |

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| **Smart**  Reverse Supply Chain  Management | **Resilient**  Reverse Supply Chain  Management |

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| **Commodity**  Reverse Supply Chain  Management | **Global**  Reverse Supply Chain  Management | **Service**  Reverse Supply Chain  Management |

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| *Supply Chain Management Overview:* | | | | | | |  |
|  |  | *Supply Chain Initiatives* | | | | |  |
|  |  | Lean  (Cost,Waste) | Green  (TBL,CSR) | Resilient  (Risk) | Responsive  (Agile) | Smart  (Technology) |  |
| *Key Supply Chains* | Commodity  Supply Chain |  |  |  |  |  |  |
| Global  Supply Chain |  |  |  |  |  |  |
| Service  Supply Chain |  |  |  |  |  |  |
| **Reverse**  **Supply Chain** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  | *Functions* | Inventory | Logistics | Relationships | Information | Strategy |  |
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**References**

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| ResearchGate:  Reverse Supply Chains for Commercial Returns.  December 2004.  <https://www.researchgate.net/publication/275247814_Reverse_Supply_Chains_for_Commercial_Returns> |
|  |
| Cognizant 20-20 Insights:  Reverse Supply Chain: Completing the Supply Chain Loop.  January 2011.  <https://www.cognizant.com/whitepapers/reverse-supply-chain.pdf> |
|  |
| Harvard Business Review:  The Reverse Supply Chain.  February 2002.  <https://hbr.org/2002/02/the-reverse-supply-chain> |