



ESD.S43 - Green Supply Chain Management

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2nd Half Spring 2014

MIT Center for Transportation & Logistics



Lecture # 1 - Outline

- Introductions & Expectations
- Learning goals
- Syllabus
 - Schedule and topics
 - Grading & team work
- Basic SC concepts
- Green Supply Chain Management + Class in a chart
- Reverse Logistics – Part I

Introduction (Name / Program)

Why did you register this course?
Expectations?

Learning goals

- Develop your understanding of green and sustainable supply chains
 - Including Reverse Logistics
- Learn tools and techniques required to analyze and design environmentally sustainable supply chain systems
- Critically assess strategic choices related to Green SCM design

Our schedule and topics

#	Date	Lecture topic (<i>lecturer</i>)	Session Pre-Reading	Assignment Due
1	3/31	Introduction to Green Supply Chain Management		
2	4/2	Invited Speaker: Gregor Thompson (GENCO)	(i)	Final project assignments Pre-reading Questions
3	4/7	Reverse Logistics / Closing the Loop	(ii) & (iii)	Project Deliverable #1
4	4/9	Carbon Footprinting (A.Craig)	(iv)	Case Questions Pre-reading Questions
5	4/14	Life Cycle Analysis (A.Craig)	(v) & (vi)	LCA Homework
6	4/16	Invited Speaker: Martin Wolf – 7 th Generation		Project Deliverable #2
7	4/23	Multi-stakeholder engagements (A.Bateman)	(vii)	Case Questions
8	4/28	Invited Speaker: EDF		
9	4/30	Invited Speaker: Noelle Selin – MIT Environmental Policy	(viii) & other TBD	Project Deliverable #3
10	5/5	Green SC Strategy (All)	(ix)	Pre-reading
11	5/7	Invited Speaker: Katie Schindall- EMC		
12	5/12	Final Presentations I		Project Final Deliverable
13	5/14	Final Presentation II		

What we expect...

- Assignments well prepared
- Active participation
- Participant-centered learning:
 - Learn from you
 - Learn from peers
- Engage you and have fun
- Academic honesty
- Your feedback

Grading

- Team project: a 10-15 pages critical analysis paper evaluating the environmental supply chain strategy of a publicly traded company

	Grading
Team project	50%
Assignments	20%
Class participation	15%
Final presentation	15%

Team project – Groups of 2 people

- **Objective:** Critically assess the practices of two companies, one a “Carbon Disclosure Project leader” and one not.

Sector	Company
Consumer Discretionary	BMW
Consumer Discretionary	Las Vegas Sands
Consumer Discretionary	TJX Companies
Consumer Staples	Diageo
Consumer Staples	Philip Morris International
Energy	Chevron
Financials	Goldman Sachs Group
Healthcare	Johnson & Johnson
Industrials	Deutsche Post
Information Technology	Samsung
Information Technology	EMC
Materials	Materials
Materials	Vale
Telecommunication Services	Endesa

Team Project Deadlines

- *Deliverable # 1 (April 7)* – Brief summary of each selected company. Highlight of key “green” attributes (2 pages + 2 slides)
- *Deliverable # 2 (April 16)* – Description of the supply chain of each company. Assessment of the CSR reports and how they match with actual actions/assessments available, including carbon footprint, water footprint and any other LCA of flagship products (6 pages + 4 slides)
- *Deliverable # 3 (April 30)* – Non-commercial pressures along the supply chain, including regulatory & NGO. Major actions taken (3 pages + 4 slides)
- *Final Deliverable (May 12)* – Final report, including all previous deliverables (edited as needed) plus an assessment of the green SCM strategy and an evaluation of the leadership nature of one of the companies (if applicable).

... the SC basics ...

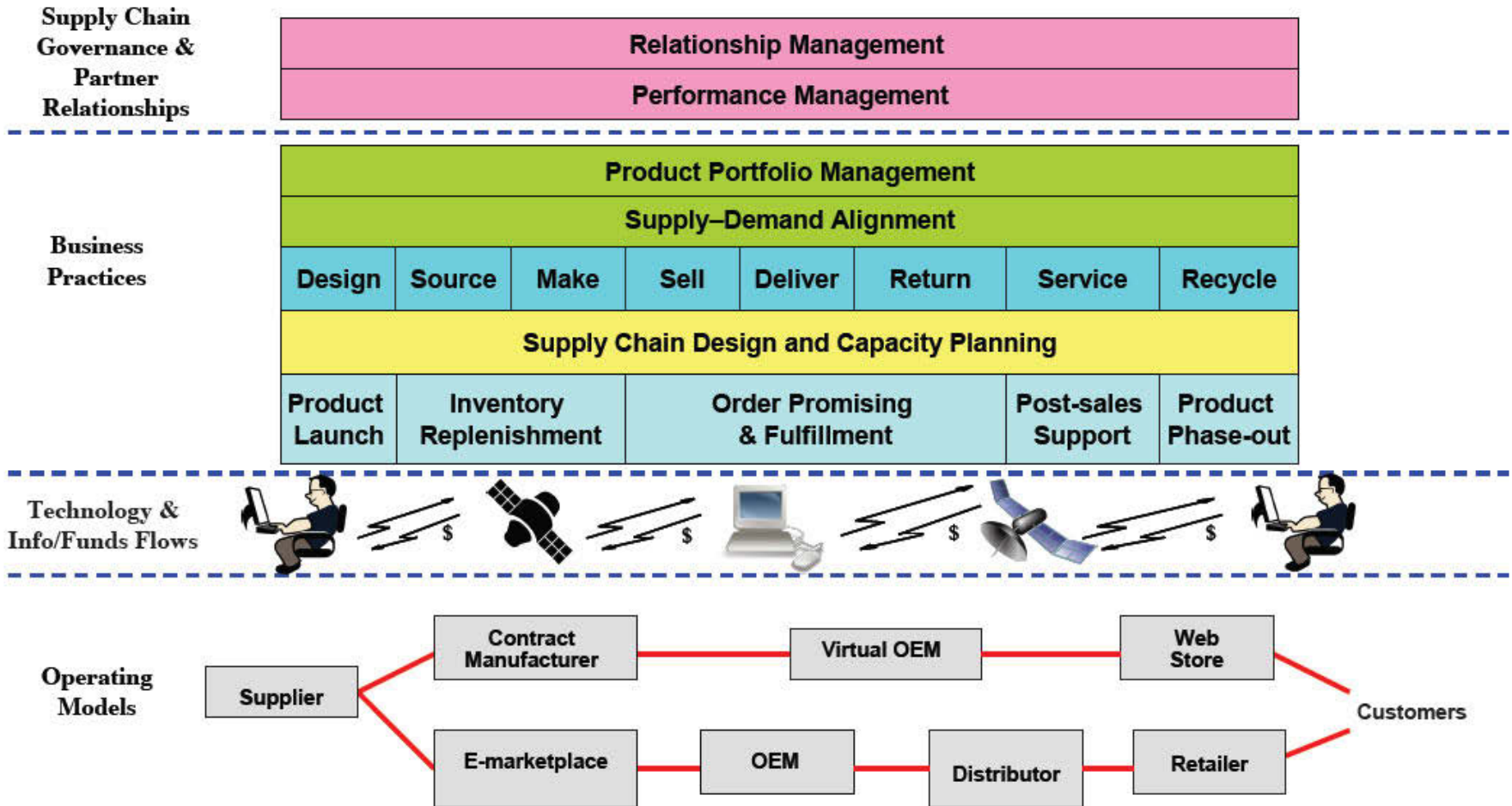
What is a Supply Chain?

- What is not...
 - Logistics
 - Purchasing
 - Manufacturing
- Many definitions
 - Hopp - “Goal oriented network of processes and stockpoints used to deliver goods and services to customers”
 - Lambert - “Business processes from end-user through original supplier that provides products, services and information that add value for customers and value to shareholders”

Add value while minimizing two types of costs

- Physical Production/Distribution Costs
 - Manufacturing costs
 - Transportation costs
 - Facility utilization rates
 - Inventory carrying cost on pipeline and cycle stock
- Supply/Demand Mismatch Costs
 - Lost revenue when demand exceeds supply
 - Product scrap when supply exceeds demand
 - Inventory carrying cost on safety stock

Broad View of Supply Chain



Traditional Functional View

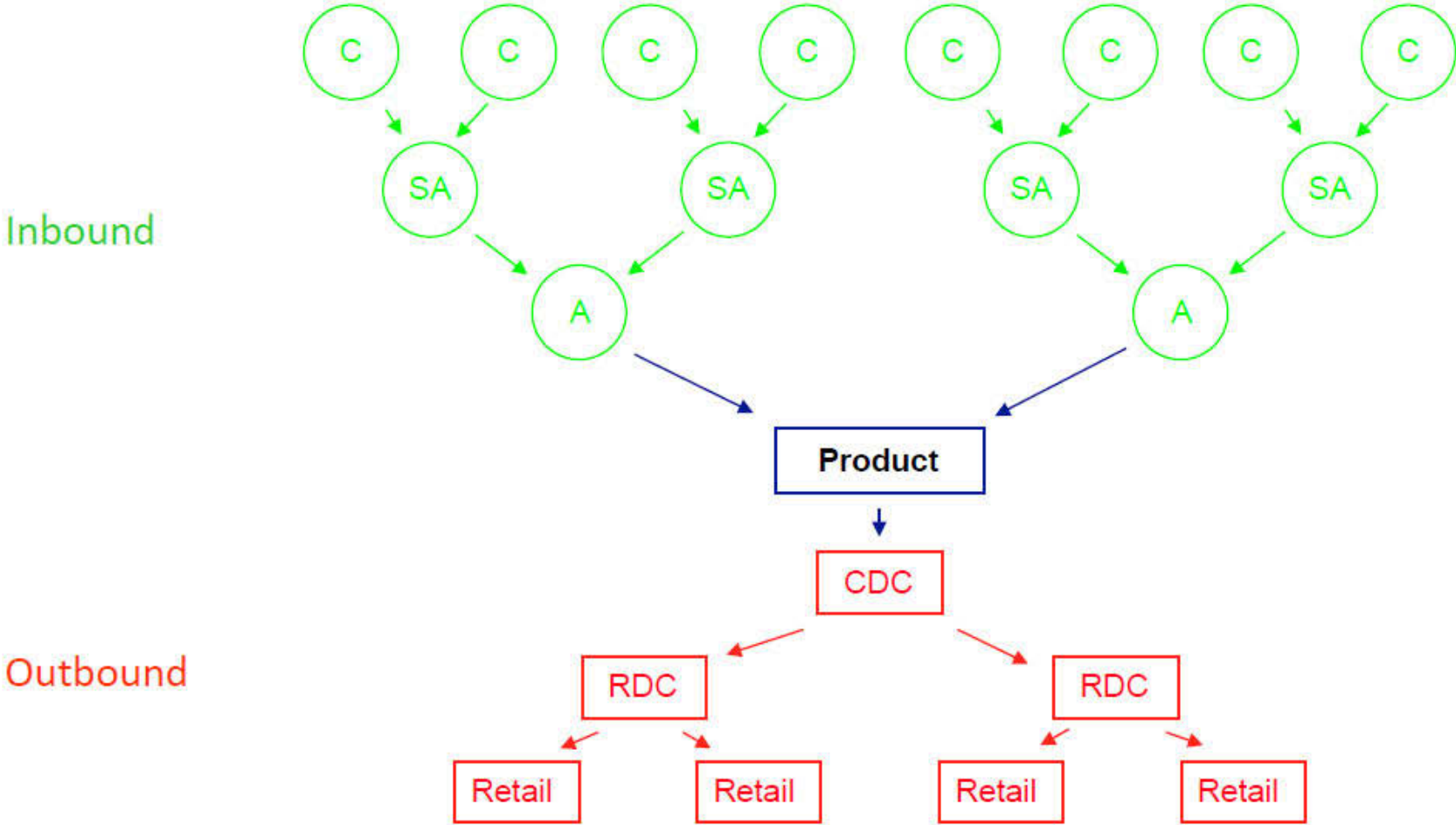
- Purchasing / Procurement
 - What to buy from who
 - Corporate vs Group
- Inventory Control
 - How much to stock where
 - Trigger points
 - Replenishment plan
- Warehousing
 - Storage, Mixing, Break bulk
 - Pick Pack and Ship
 - What to stock where in WH
- Materials Handling
 - How to move product
 - Packaging, containerization
 - Storage layout

- Order Processing
 - Receiving, Entry & Status
 - Order Management
- Transportation
 - Inbound versus Outbound
 - Domestic versus International
 - Modal control (Rail, TL, LTL, Parcel, Air, etc.)
- Customer Service
 - Geographic
 - Product Line Specific
- Planning Group
 - Facility Location
 - Network Design
 - Demand Planning

Supply Chain Processes

Figure removed due to copyright restrictions. See Exhibit 3 in Lambert, Douglas M. "The Eight Essential." *Supply Chain Management Review* 8, no. 6 (2004): 18-26 for further details.

Supply Chain Network – nodes & arcs



... green...

Sustainability vs. “Green”

World Business Council for Sustainable Development:

Sustainability

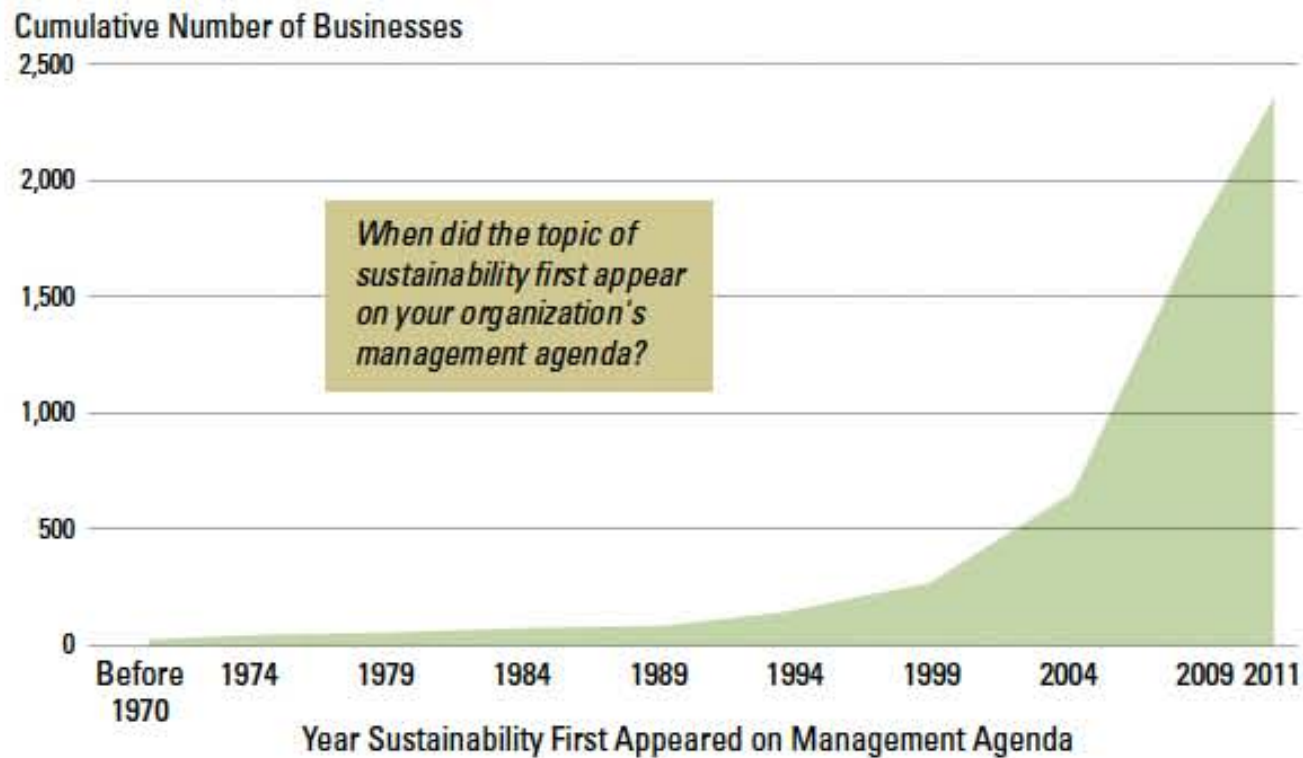
Meeting the needs of the present without compromising the ability of future generations to meet their own needs

- Green has a primary focus on the environment
- Sustainable includes environment + social

... state of practice ...

(from a business strategy)

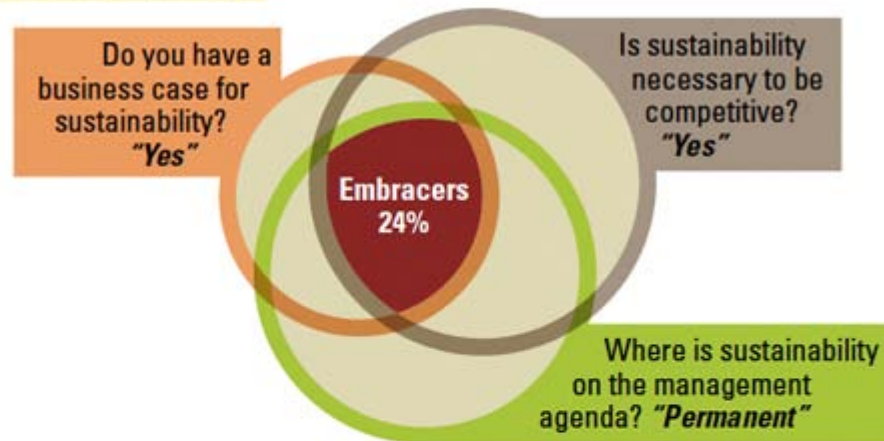
The Sustainability Movement Nears a Tipping Point



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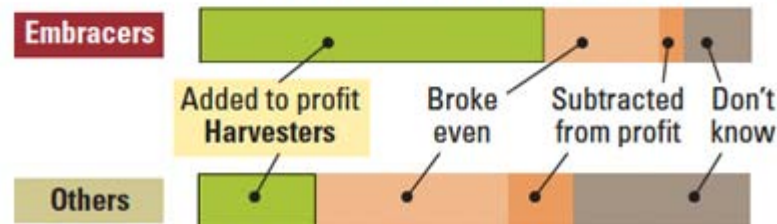
“Embracers” vs. “Harvesters”

Last year: Embracers



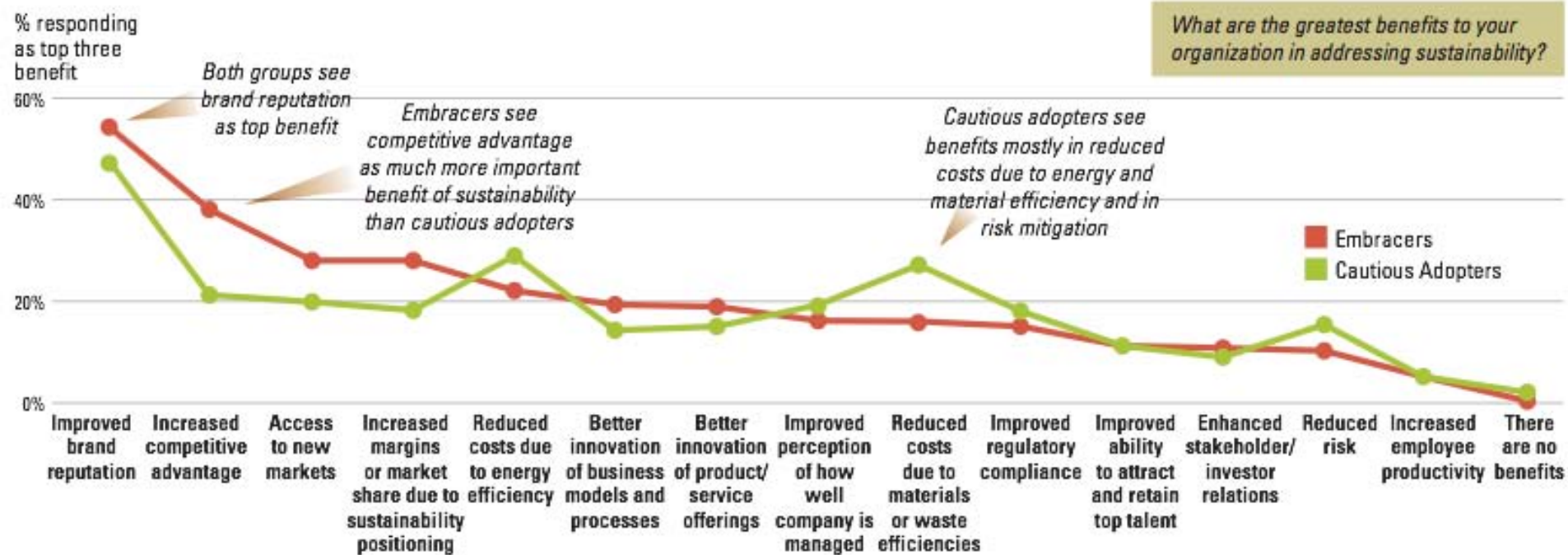
This year: Harvesters

The effect of sustainability-related actions/decisions on organizations' profitability



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What are the greatest benefits to your organization in addressing sustainability?



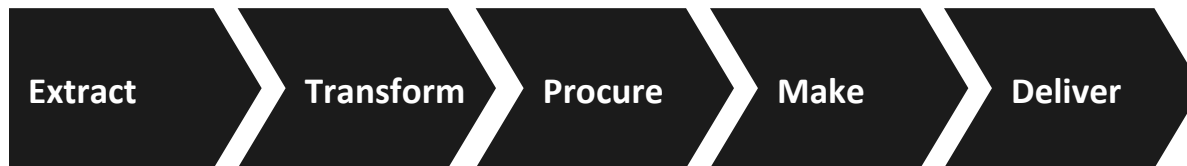
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The role of supply chain management

in (environmental) sustainability

“Traditional” Supply Chain Management

- All parties involved, directly or indirectly, in fulfilling a customer request

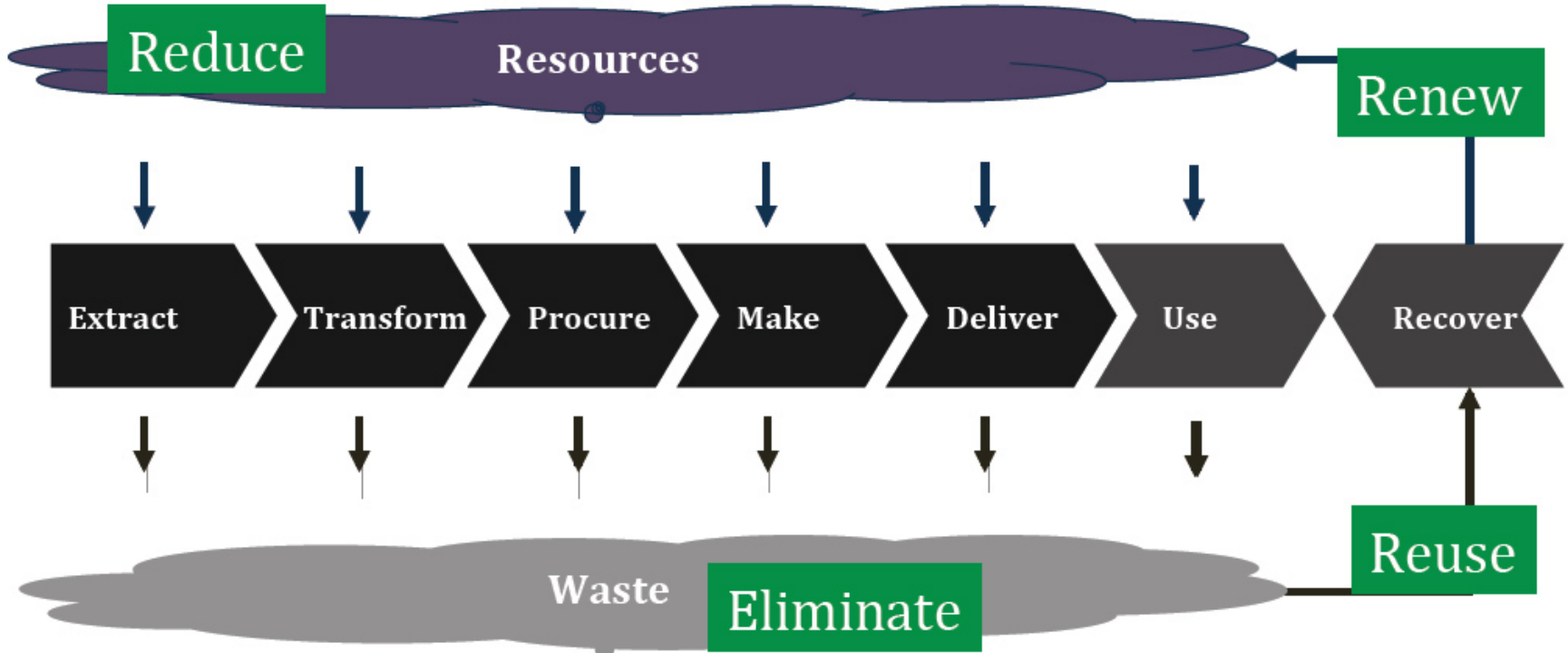


- Source of competitive advantage
 - Innovative business models
 - Value creation
 - Efficiency

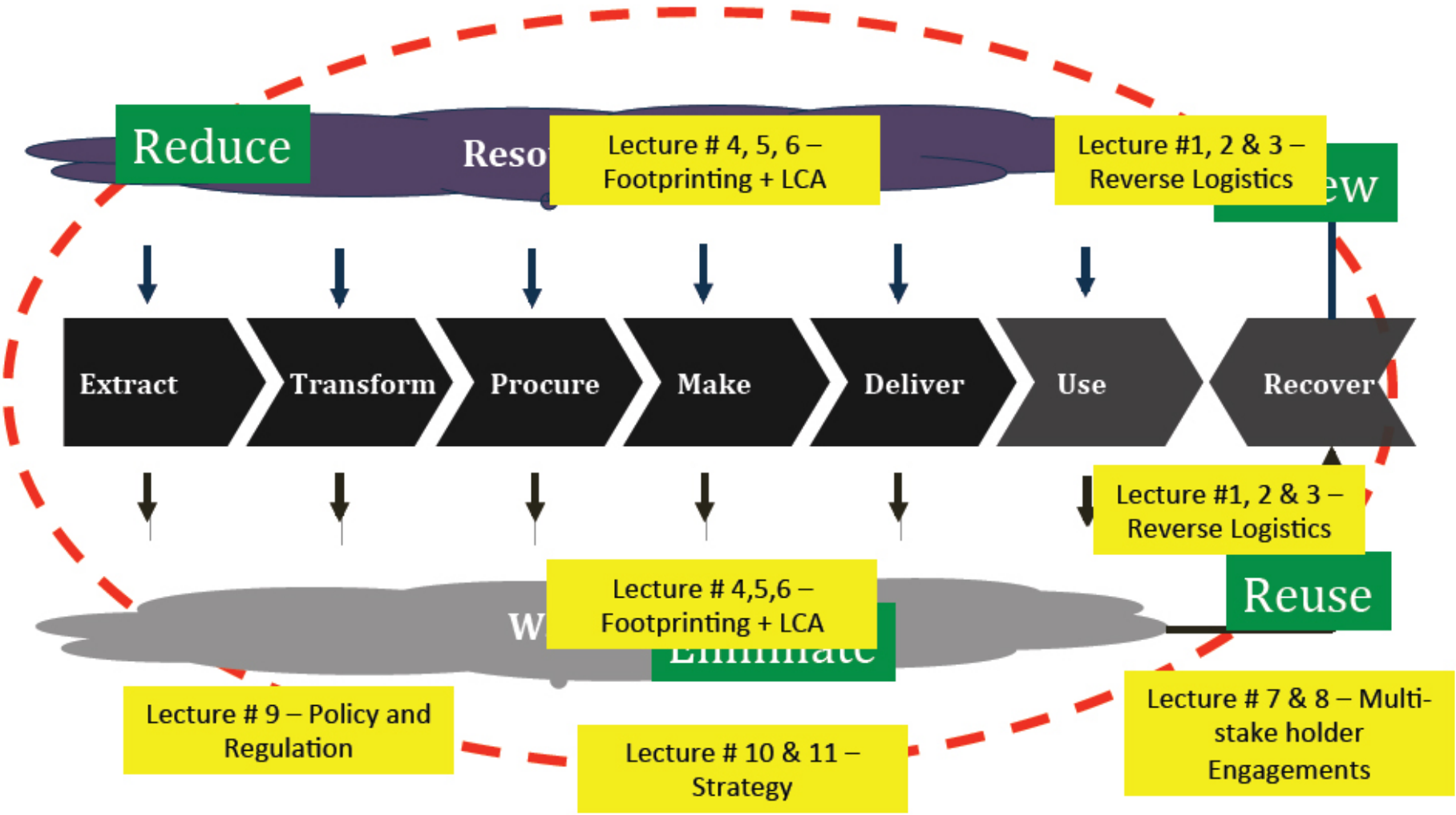
What is green supply chain management?

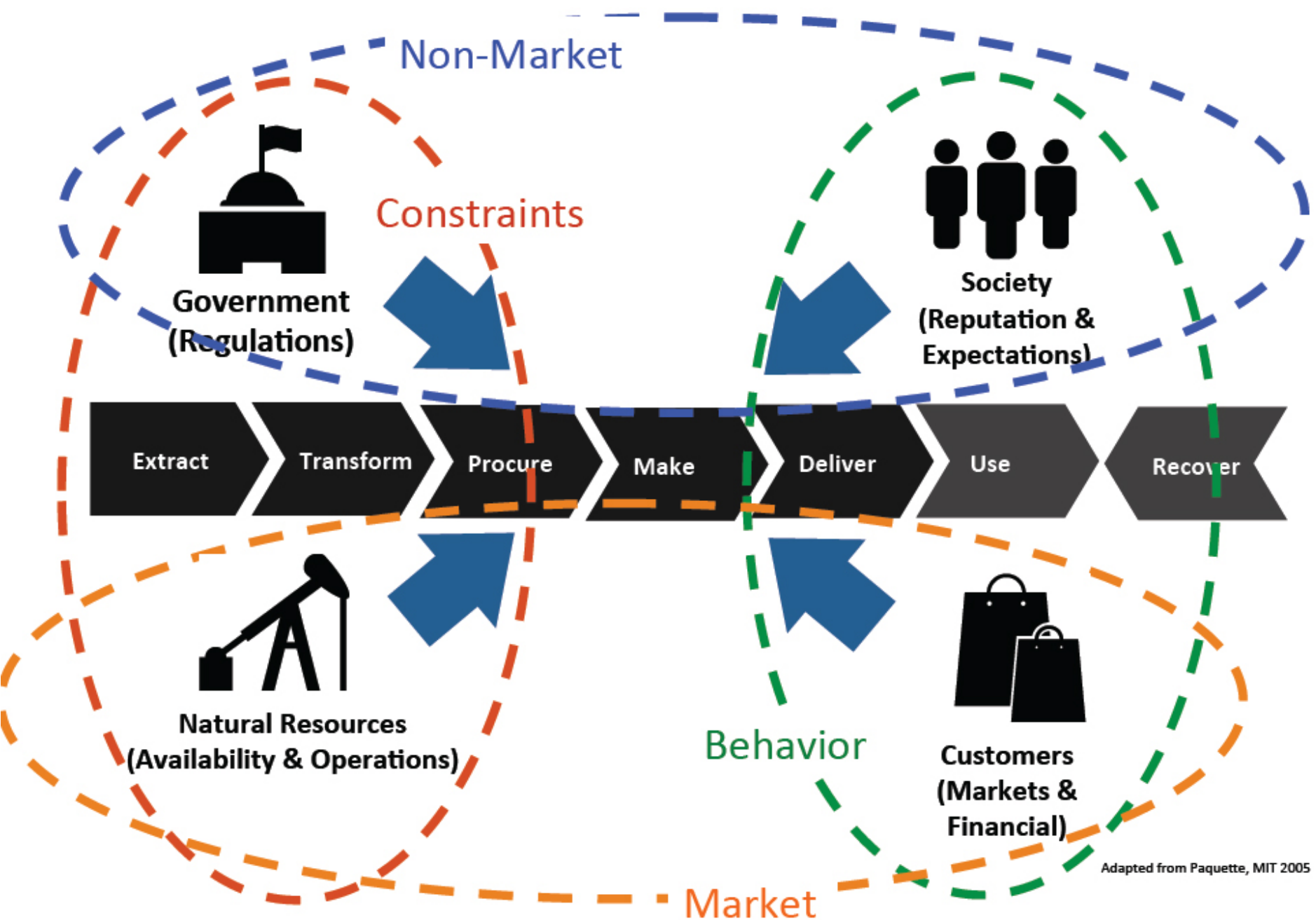
- It can include
 - Reduction of energy use & renewable alternatives
 - Cutting water volumes & countering contamination
 - Reducing, scrubbing or sequestering GHGs
 - Decreasing quantities of waste
 - Recycling
 - Packaging material reductions
 - Reverse logistics

Green SCM in one slide



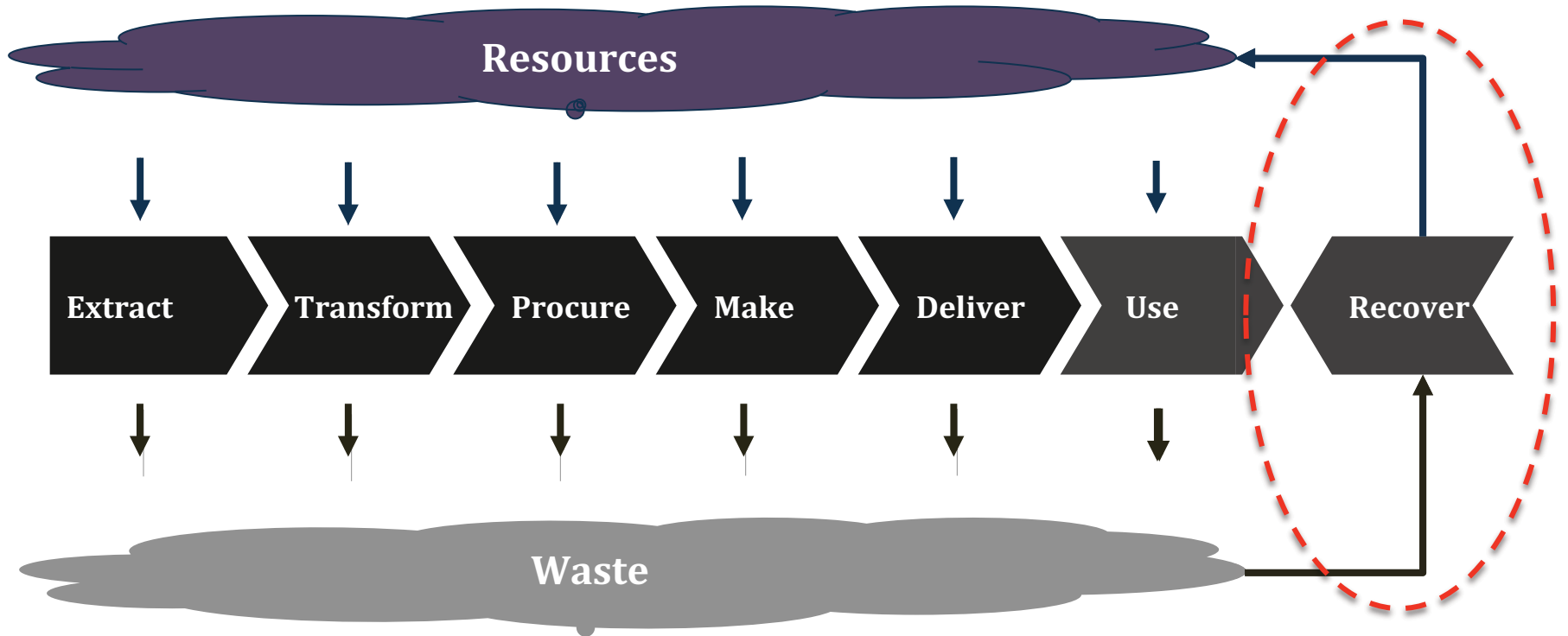
ESD.S43 in one slide





Reverse Logistics – Introduction

Green SCM in one slide



Definition of Reverse Logistics

“The process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or proper disposal”

Rogers and Tibben-Lembke (1999)

Think about the reverse logistics of these five products ...



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Questions?

Next class: Guest Lecture GENCO & Pre-Reading Questions

Rogers, Dale S., and Ronald Tibben-Lembke.

"An examination of reverse logistics practices." *Journal of business Logistics* 22.2 (2001): 129-148.

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