

Going Green: Sustainability and the Future of Operations Management



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Your Thoughts?

- **What does the term “green” mean to you?**
- **What do you think of when you hear the word “green”?**

New term: ***Sustainability***

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Goals of Talk

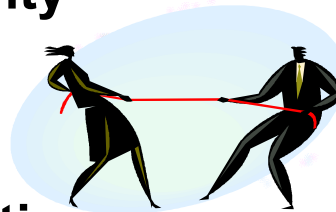
- **What is “sustainability”?**
- **Why is it important to OM and SCM?**
- **What can I do about it?**



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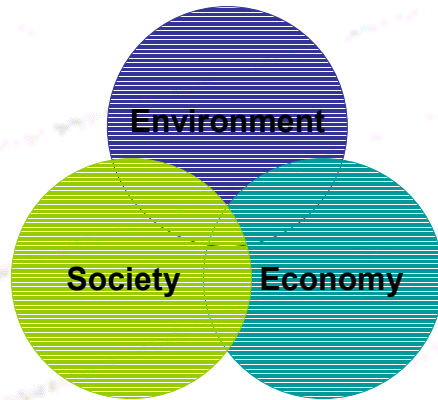
Old Paradigm

- **Economic prosperity vs. environmental protection**
- **Jobs vs. conservation**
- **Growth-at-any-cost vs. All-growth-is-bad**



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Sustainability Framework



- Responsibility
- Ecology
- Futurity

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Sustainable Development

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



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Why Do Firms “Go Green”?

- Regulation/Legislation

- EPA
- ISO14000
- WEEE/RoHS



- Image/Perception

- Public relations
- Customer preferences

- Economic

- Waste reduction
- Value recovery



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WEEE/RoHS Directives

- WEEE

- Purpose: collection, recycling, and recovery
- Covers: electrical and electronic devices
- Timing: August 2005

- RoHS

- Purpose: hazardous material reduction
- Covers: electrical and electronic devices
- Timing: July 2006

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Example: Logitech

- \$1.5 billion in revenues
 - Keyboards, mice, etc.
 - Speakers, sound equipment, video
- WEEE/RoHS impact
 - 98% of products
 - Processes:
 - equipment
 - materials
 - vendors
 - inventory management, etc., etc.



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WEEE/RoHS: Big Picture

- Operations
 - Product design
 - Process design
 - Supply Chain (forward and reverse!)
- Marketing
- Finance/Accounting
- Information Systems

This Trend Will Continue!

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Example: Recycline

- Toothbrush facts
 - Brush replacement: 1.5 times/yr.
 - Impact: 50 million pounds!
- *Preserve* toothbrush
 - Made from recycled yogurt cups
 - Used brushes turned into plastic “lumber”



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Recycline: Lessons

- Build it, and they will come
 - 25% of consumers seek eco-friendly products
 - 63 million Americans!
- To build it, you need help
 - Reliable supplier of materials
 - Partnership with Stonyfield Farms (yogurt)



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Economic Incentives

- **DuPont**
 - Reduced greenhouse emissions by 65%
 - Cost savings: \$2 billion
- **BP**
 - Reduced greenhouse emissions by 16%
 - Cost savings: \$650 million

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Economic Incentives (cont'd)

- **STMicroelectronics**
 - Cut energy use by 5% per year
 - Cost savings: \$173 million
- **Smith & Nephew**
 - Scrap metal
 - Cost and liability → revenue

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Where's the Beef?

- Which of the three reasons is the most important?
- How do OM and SCM play a role?
- What lessons can we learn from these examples?

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OM and Sustainability

- Product design
- Process design
- Supply chain management
 - Purchasing
 - Vendor selection
 - Location
- Quality management
- Etc.



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Remember the Quality “Revolution”?

- Try to ignore it
 - “We don’t have any problems.”
- Try to avoid it
 - “It’s a cultural thing.”
- Try to contain it
 - “That’s a QC problem.”
- Actually do it
 - “Quality has always been our #1 priority.”

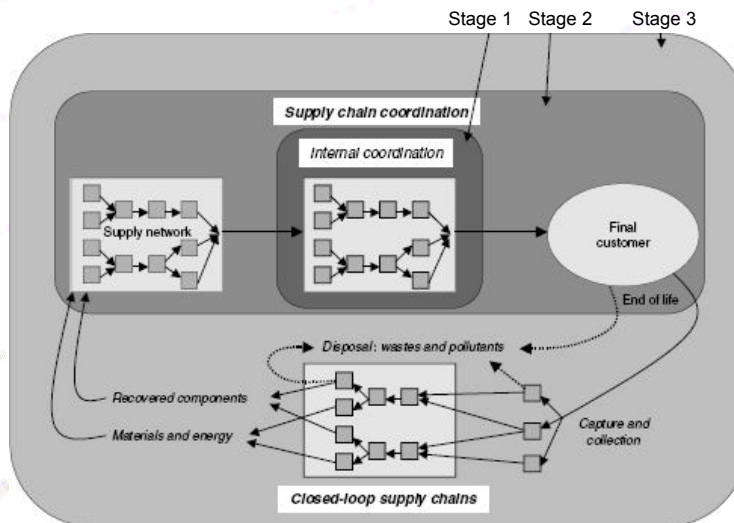
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Lessons from the Quality Revolution

- Important to understand customer expectations
- Poor quality = high cost
- Improving quality can have unexpected benefits

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SCM Evolution



Source: Corbett, C. and Klassen, R., *M&SOM*, v8, n1, 2006, p. 14.

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Sustainability Revolution: Expectations

- Side benefits – perhaps from unexpected areas
- Cross-functional cooperation required
- Transition from sole-manager to organizational responsibility

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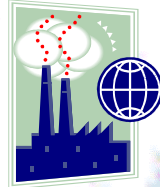
Outlook for the Northeast

- Many industries affected
- Many types of jobs affected
 - Engineering
 - Operations
 - Marketing
- Out-sourcing and off-shoring
- New England uniquely positioned
 - Brainpower
 - Environmental concern

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UMass Lowell Initiatives

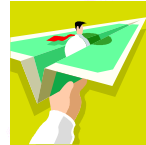
- Academic programs
 - Green chemistry
 - Green design/building
- Collaboration with industry
 - Toxic Use Reduction Institute
 - Environmental Management Systems
 - Perc alternatives



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UMass Lowell Initiatives (cont'd)

- New Venture Incubator
 - Alternative energy sources
 - Plastics



- Green campus
 - Green buildings
 - Energy usage
 - Materials management



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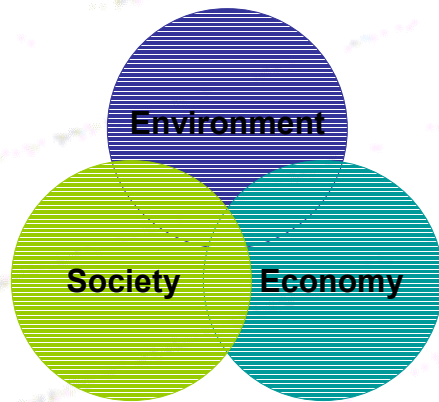
Sustainability...

- Is revolutionary
- Will affect many industries, many jobs
- Makes sense
- Is happening!



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Some Final Thoughts

- Think global
- Think big
- Think small
- Think **GREEN**...with grit.



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The End

**Any
Questions**



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