Toyota and SMM
Lessons from the Trenches

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TOYOTA
NORTH AMERICAN
Environmental

My Perspective

- Bachelors Ecology/Cognitive Sci (Rice)
- Masters Envi Science & Mgmt (Bren/UCSB)
  - Courses in Industrial Ecology, LCA, Green Supply Chain
- Experience in LCA-based tool development
  - Published in Journal of Industrial Ecology
- Toyota NA Lead for Waste
- NRC since 2000 (CURC, STAR, CRRA)

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Toyota LCA Experience

- Owning a package lifecycle
- EPIC Development (packaging)
- EPAT Development (paper)
- ECO-VAS Use (vehicles)
- Well-to-Wheel Analysis (fuel/drivetrain)
- Copper Cradle-to-Cradle (vehicle)

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Lessons Learned

- EOL is one factor among many

- Pursue data over dogma

- Have good data/methodology (e.g. ISO 14040)

- One Tactic does not Fit All

- Plan to navigate trade-offs (ex. Recycled content & Durability)

- Mass Rules

Key Distinctions

Product Category	Dominant Impact	Examples
Short Use	Production Phases	Packaging, Disposables
Long use	Use Phase	Vehicles, Clothing
What else?		

- Recycling tends to focus on Short Use Products
- EOL impact is Small to Tiny
- Useful Question:
  What stage does the impact come from?

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Key Distinctions

- Make the focus match the stage

- Needs change over time

EOL Infrastructure	Examples	Focus
Reliable	Cardboard Packaging	Lightweighting, RC, Reduce
Volatile	Plastic Packaging	Waste Pooling, RL, Alts, Reduce
Established	Vehicle Scrap	DfR, SOC removal
Nascent	HV Batteries (ca 2000)	Take-back
Developed	HV Batteries (now)	Competing for Reman

- Useful Question:
  What is the <u>current</u> EOL infrastructure?

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