LCA from an Industry Perspective

William P. Flanagan, PhD
Ecoassessment Leader
GE Global Research

US EPA-NSF Scientific Workshop:
Design of Sustainable Product Systems
and Supply Chains

Arlington, Virginia
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We believe the world's most pressing challenges present an opportunity to do what we do best: **imagine and build innovative solutions that benefit our customers and society at large**

Ecoassessment

Center of Excellence

A systematic way to assess environmental footprint of selected GE products

- Strategy and vision
- Expertise and guidance
- Tools and processes
- Education and awareness
- Policy and advocacy

External networks are important

- External LCA experts
- Academics
- 3rd-party critical review
- Software providers
- NGOs
- Industry LCA contacts

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Business-driven application of LCA

direct and indirect value

eco Product Innovation
LCA a key element of environmentally conscious product design
(but not the only element)

Commercial
(1) Ability to deliver complex environmental messaging;
(2) Ability to compete for bids requiring LCA / carbon footprint

Business Strategy
Identify strategic business opportunities

Due Diligence / Risk Management
Identifying and addressing potential perceptual and business risks

Reputation
(1) Enhancing corporate reputation and eco brand value;
(2) Ensuring seat at environmental policy table

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LCA application space within GE

R&D /
Business strategy

Product design

Product evaluation

Alternatives	Necessity	Urgency	Market Potential	Resources	Environment	Competitive	Risks/ERP	Investment	Technical Maturity	Time to Market	Prestige	Public Support	Weighted Value
Weight	3	3	3	3	3	2	1	2	2	2	3	3	≙ 146
Hydrogen Fuels	3	4	4	4	5	-2	4	-4	-4	-4	4	4	60
Transmutation of Nuclear Waste	2	4	4	1	4	0	2	-2	-2	-2	5	2	50
Dissociation of Chemical Compounds	2	3	3	1	5	-2	2	-1	-2	-2	2	4	48
Electricity, Central Station	2	2	3	3	4	-2	3	-4	-3	-3	3	3	39
Electricity, Local Station	1	2	2	2	4	-4	2	-2	-2	-2	3	4	36
Propulsion	1	5	2	0	0	2	1	-3	-2	-2	4	2	33
Process Heat	1	1	1	2	4	-1	3	-3	-2	-2	2	2	26
Detection, Remote Sensing	2	3	3	0	0	1	1	-1	-1	-2	1	1	25
Radiotherapy	2	2	2	1	0	-2	1	-1	-1	-1	1	3	24
Desalination, Fresh Water	2	0	3	4	2	-2	1	-2	-3	-3	2	1	23
Radiotherapy	1	3	2	0	0	-2	1	-1	-1	-1	1	3	21
Activation Analysis	2	4	2	0	0	1	0	-2	-2	-1	1	0	19
Ore Reduction, Refining	1	1	1	2	2	-3	2	-1	-2	-2	1	2	16
Lifting empty	2	2	2	0	0	-3	1	-1	-1	-1	1	2	16
Refining empty	1	3	1	0	0	-2	1	-1	-1	-1	1	2	15
Tritium Production	1	4	2	3	0	2	1	-2	-3	-2	-1	-1	15
Fusion Fission Breeder	-2	3	2	3	1	-1	2	-3	-4	-4	1	-1	-1

Commercial support

Understanding benefits, risks, opportunities

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Selected project examples

- Biomass/coal gasification
- 2.5MW wind turbine
- CdTe thin film solar
- Durathon™ sodium metal halide battery
- Smart Meter
- Single-use process equipment for biopharmaceutical manufacturing

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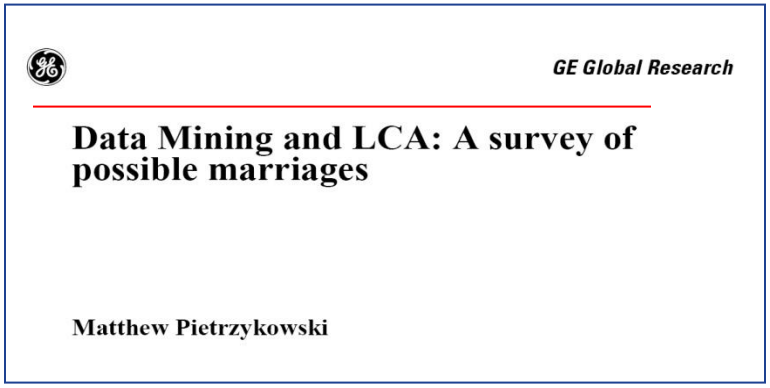
Advanced statistics and numerical analysis
Sensitivity and uncertainty analyses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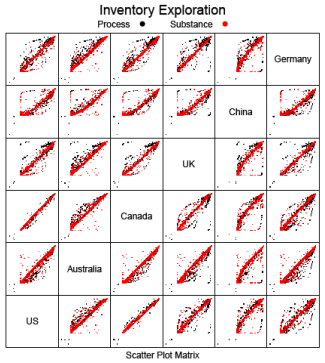
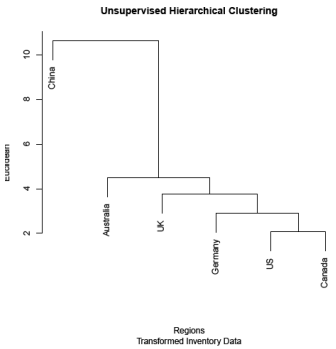
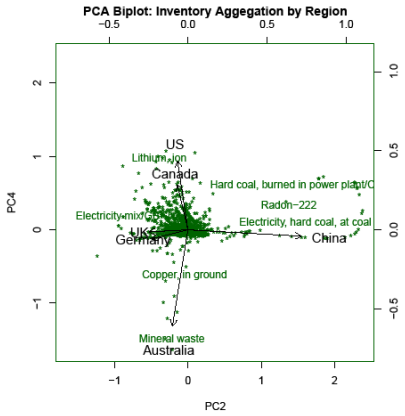
Data Mining and LCA: A survey of possible marriages

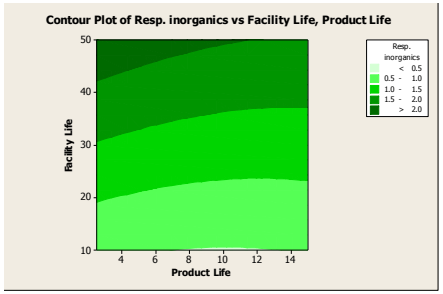
Matthew Pietrzykowski

LCA IX, Boston, MA, Oct 2009










Matt Pietrzykowski


Ron Wroczynski

Short courses:
- Statistical Methods in LCA
- Advanced Statistics and Data Analysis

Offered at LCA XI, October 3, 2011, Chicago

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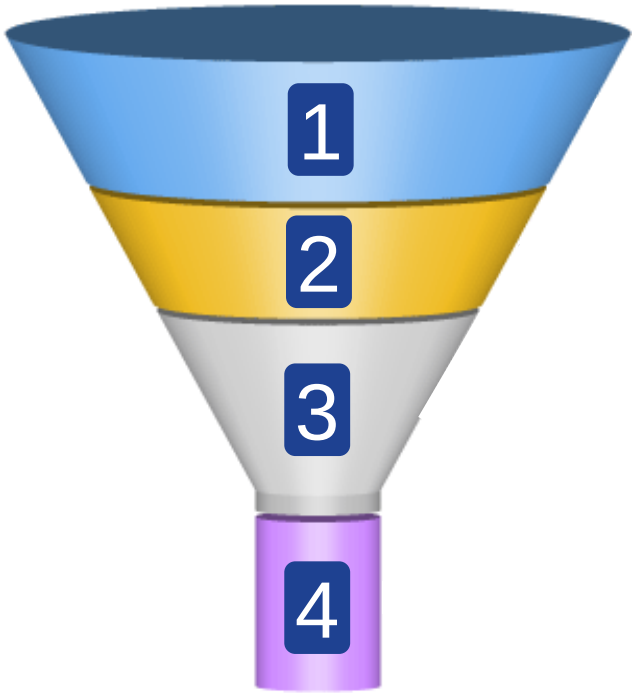
Five enabling principles

Be strategic and selective



Little or no expertise required

1 Qualitative Evaluation
- Qualitative
- Substances of concern
- Product regulatory compliance
- Material sustainability

2 Screening LCA
- High-level, data "lite"
- Hot spot identification

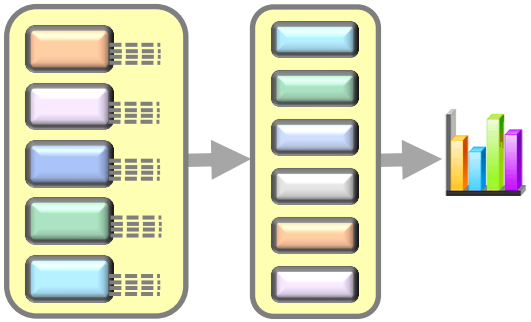
Deep expertise required

3 Streamlined LCA
- Reduced system boundaries
- Suitable for internal use

4 Extensive LCA
- Required for support of external claims
- ISO 14040-44
- 3rd-party panel review required for external claims involving comparative assertions

Strategic down-select → business efficiency

Leverage qualitative screening



- Insight and awareness
- Reduced time and effort
- Quickly identify areas that may require further analysis

Efficient | Effective | Can be used by non-experts

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Focus on value creation

- For any idea to thrive within industry, it must create value
- Many opportunities to create value from sustainability-based initiatives

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Customize to business context

- No “one size fits all” tool or strategy
- Be prepared to customize content
  - ✓ Invites ownership
  - ✓ Enhances relevance and value

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Leverage power of innovative thinking

- Great ideas can come from anywhere
- Invite active engagement

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Final thoughts

1. Be strategic and selective
2. Leverage qualitative screening
3. Focus on value creation
4. Customize to business context
5. Leverage power of innovative thinking

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Bill Flanagan
Ecoassessment Leader
GE Global Research
1 Research Circle
Niskayuna, NY 12309
flanagan@ge.com
(518) 387-5070