

# Beyond zero-waste

Cradle to Cradle Products Innovation Institute

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# A shift in paradigm

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Eliminate the **concept** of waste – not reduce, minimize, or avoid waste ... but **eliminate the very concept, by design.**

– *William McDonough and Michael Braungart*

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# Introducing: our pink elephant

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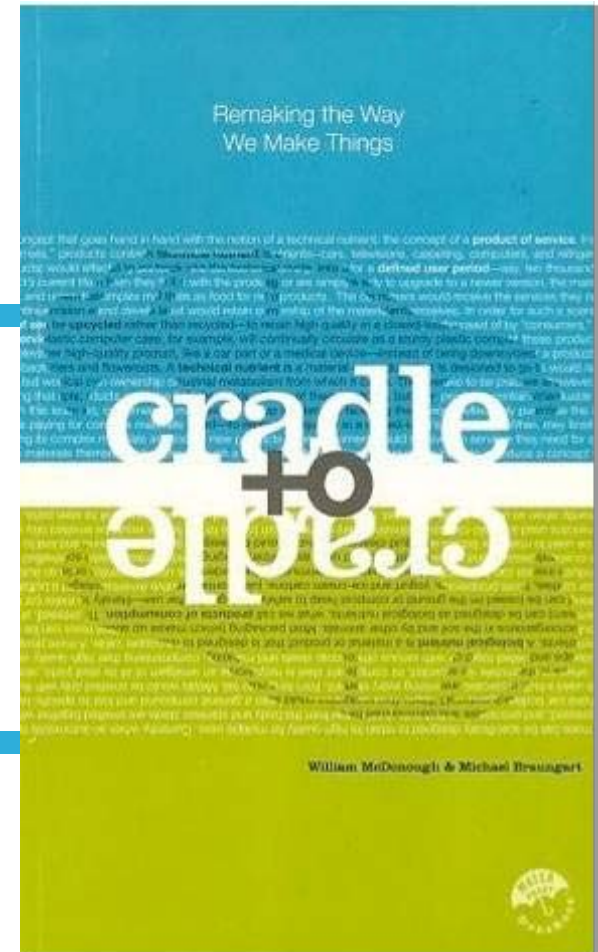
**The one way linear flow of materials through industrial systems is our real problem**

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# Cradle to Cradle

## Cradle to Cradle is ...

- ... a practice
- ... a design philosophy
- ... a certification system for safe and healthy products



# Imagine a World ...

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**Where  
nutrients  
remain  
nutrients**

**Where all  
materials  
are  
healthy  
and safe**

**That is  
100%  
cleanly,  
renewably  
powered**

... Where consumption is a *good* thing

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# Introducing eco-effectiveness

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- Deal directly with the issue of maintaining resource quality and productivity through many cycles of use, rather than seeking to eliminate waste
  - Transform products and material flows, so they form a supportive relationship with ecological systems and future economic growth
  - Enable materials to maintain their status as resources and accumulate intelligence over time
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# How does that work on a product-level?

*Design products and material flows which deal directly with with the question of maintaining or upgrading the quality and productivity of material resources over many use-cycles.*



# Cradle to Cradle Certified<sup>CM</sup> Products Program

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A Continuous Improvement Quality Standard

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# CLIMATEX biodegradable seat cover fabrics



- Materials positively defined as biological nutrients
  - Ecologically safe dye chemicals
  - Lowering overall production costs
  - Fully biodegradable and compostable
  - Factory water output cleaner than input
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- Eliminating need of filtering dyes and chemicals
  - Trimmings no longer toxic
  - Proactive approach toward increasing regulative pressure



# Steelcase: Think Chair



- Highly recyclable (99% by weight)
- Disassembly in 5 minutes using common hand tools
- Customers actively invited to participate in recovery
- Up to 44% recycled content
- Green-guard indoor air quality certified
- Reducing fatigue and discomfort by adopting to the way you sit

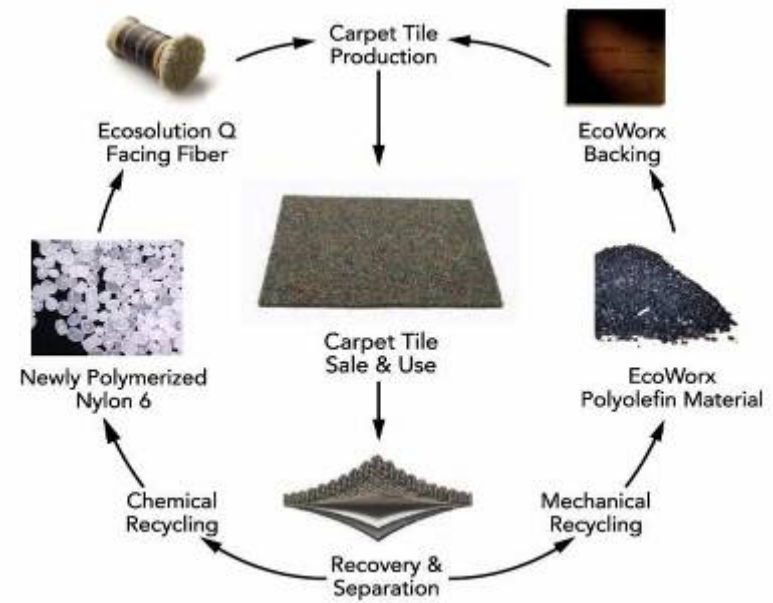
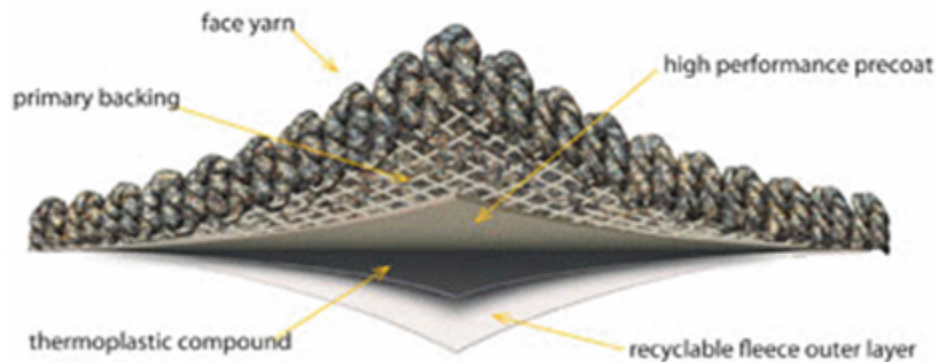
- Original iconic design
- Environmentally sound
- profitable
- TPU instead of PVC (energy footprint)
- Producing renewable (wind)energy



# Shaw Carpet Tiles



- PVC-free, fully recyclable
- Designed to be remanufactured, again and again
- In a continuous loop (carpet to carpet)
- Up-cycling 121 million pounds of carpet waste yearly
- 100+% take back,
- Increased profitability & turn-over



# Desso: AirMaster etc.



- Redefined their product (AirMaster)
- New markets and improved market-share
- Increased profitability & turn-over
- PVC-free, fully recyclable
- Designed to be remanufactured, again and again
- Take-back-system in place

- Bitumen phased out (not definable)
- Teflon Phased out (biopersistent fluocarbon)
- Switching to renewable energy
- Cleaning water



# What the EU can do to help

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Leverage market forces to design, produce, and sell ever more environmentally benign products and accelerate the innovation and selection of sustainable, non-toxic choices for consumers

## Actions

- Validate assessment-method (survey effects on indoor air-quality)
  - Establish “More Good” Products Council
  - Lead by Example – Change Government purchase criteria
  - Introduce tax-benefits for recoverable and wanted materials
  - Prohibit the burning of valuable materials
  - Introduce consumer-premiums for recovering raw materials
  - Create a voluntary program focused on maintaining or upgrading the quality and productivity of material resources
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# Make the Market Economy Work

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Move away from solving end of life problems as the purview of the government and put that responsibility back into the market and challenge business to come up with solutions

## Actions:

- Call on industry to create C2C systems & accept assessment-method
  - Introduce a raw-materials passport (naming recycling options and value of materials used)
  - Foster research and development in new product design
  - Stimulate company investments in green research & technologies
  - Assist industries to shift from end-of-pipe recycling and waste management to greener design and production
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# Problems Solved

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- Move from end of pipe to redesigning design (pro-active)
  - C2C will push recycling industry and make them more innovative
  - More raw materials will be recovered and re-used
  - Less 'waste', more nutrients by designing for (dis)assembly
  - Less dependence on materials from third world suppliers
  - Creates market place for recycled material stock
  - New technology development with collection and sorting technology
  - Improves competitiveness of European companies in global markets
  - Technology and innovation driven economic growth
  - Create new global market opportunities for businesses in consumer-product market
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# About the C2C Products Innovation Institute

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- Nonprofit organization provides third-party verification of the Certified Products Program
  - McDonough Braungart Design Chemistry gifted the certification license to bring about a large-scale transformation
  - Works with leaders from academia, the environmental community, government and industry to continue the evolution of the rating system
  - Works to market the value of the certification to products and processes
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*Go beyond Zero!*

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*Leave a Big positive footprint*

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