

Source: Braungart, Michael, McDonough, William (2003): Einfach intelligent Produzieren - cradle to cradle: Die Natur zeigt, wie wir die Dinge besser machen können, 6. Aufl., Berlin: Berliner Taschenbuch Verlags GmbH

# PRODUCE IN A MORE INTELLIGENT WAY

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## THE DEFINITIONS

**Efficiency**  
output-driven acting



**Effectiveness**  
process-driven acting  
(quality of achieving goals)



## THE REALITY

Linear system of materials management on a planet with finite resources.



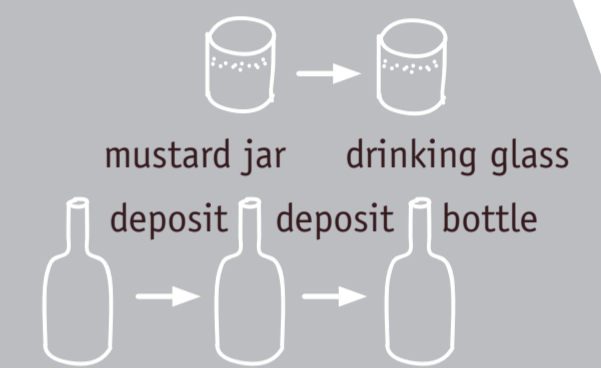
Materials are often not recycled to the same cycle → which results in loss of nutrients and resources (waste).

**Recycling** (cycle of materials/nutrients)

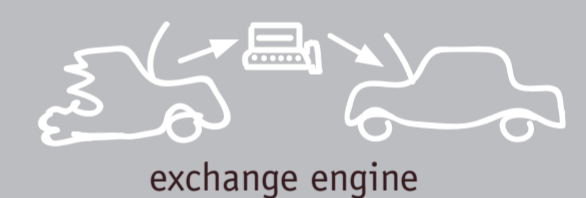


- material recycling (further use of resources)
- product recycling (re-use/ continue of use)

Example (product recycling)



example (material recycling)



Changing and improving existing recycling concepts leads to increased efficiency.

## CRADLE to CRADLE

**DIE IDEA (2003)**

Nature is a vital cycle of abundance. Learning from nature means developing cycles (recycling) for products, nutrients, and processes.

**ECO-EFFICIENCY**, the older and outdated concept of environmental protection as implemented in the past

**CRADLE to GRAVE**  
→ Transfer of the old concept into a new approach

**Downcycling** → the material resulting from the recycling process is of minor quality than the source material

### THE 5 STEPS for implementing ECO-EFFECTIVENESS into companies

- 1. No more harmful substances.** The decision for the use of substances is taken in the designer's head already.
- 2. Ecological intelligence.** More conscious thinking leads to more positive decisions on management level.
- 3. Use of lists in production.**  
**X-list:** all substances to be avoided because they are harmful for environment or health.  
**Grey-list:** Substances to be avoided in the future.  
**P (positive)-list:** all harmless substances.
- 4. Use active P-list for innovatively re-designing goods and processes;** for "being good" without repeating bad patterns/habits
- 5. New and healthy principles** for new ways of thinking in the producers' and consumers' heads.

### NEW APPROACH: ECO-EFFECTIVENESS

- long-term planning of materials → recycling instead of disposal: Waste equals "food" for biological and technical materials cycles → production and sales activities must be changed and be made more transparent paying attention to environmental concerns → this way, consumers can select environmentally friendly products via the system "ballot = receipt"
- The **3 relevant principles** of CRADLE to CRADLE are:
1. Waste equals food
  2. Use renewable energy
  3. Production in and for biological and technical nutrient cycles without polluting each other (for consumables and commodities)

