

The following design protocols are excerpted from *Design is the Problem* by Nathan Shedroff. The four protocols outlined here are the most popular strategies used in material production at the current time. Each one represents a slightly different approach to environmental and sustainability concerns.

Approaches to Sustainability

1. Natural Capitalism

- Also known as ‘eco-efficiency’
- Presents a framework for re-thinking the value of social and natural resources in the context of business
- Describes four different types of capital:
 - Natural Capital
 - Human Capital
 - Manufactured Capital
 - Financial Capital
- Promotes four primary shifts:
 - Radical Resource Productivity
 - Ecological Redesign
 - Service and Flow Economics
 - Investing in Natural Capital

2. Cradle to Cradle

- Also known as ‘eco-effectiveness’ or ‘C2C’
- Presents a powerful perspective on the cyclic nature of waste and food, as well as the need to keep technical and biological materials separated
- Basis for this approach involves four main principles:
 - Elimination of hazardous (toxic) materials
 - “Waste equals food” (changing our definition of “waste”)
 - Use the current solar income of energy
 - Use “upcyclable” materials

3. Biomimicry

- Represents an approach to re-imagining the design and development process
- Searches for new ways of creating sustainable materials, products, services, and other solutions by learning how nature already works
- Central principles include:
 - Striving to discover and emulate nature’s processes and materials
 - Evaluating solutions against nature’s own principles

- Learn from nature as a source of information and strategies, not merely materials

4. Life Cycle Analysis

- Represents the most exacting and accurate framework for assessing solutions
- Assesses the environmental aspects and potential impacts associated with product, process or service by using the following criteria:
 - Compiling an inventory of relevant energy and material inputs and environmental releases
 - Evaluating the potential environmental impacts associated with identified inputs and releases
 - Interpreting the results to help you make a more informed decision

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