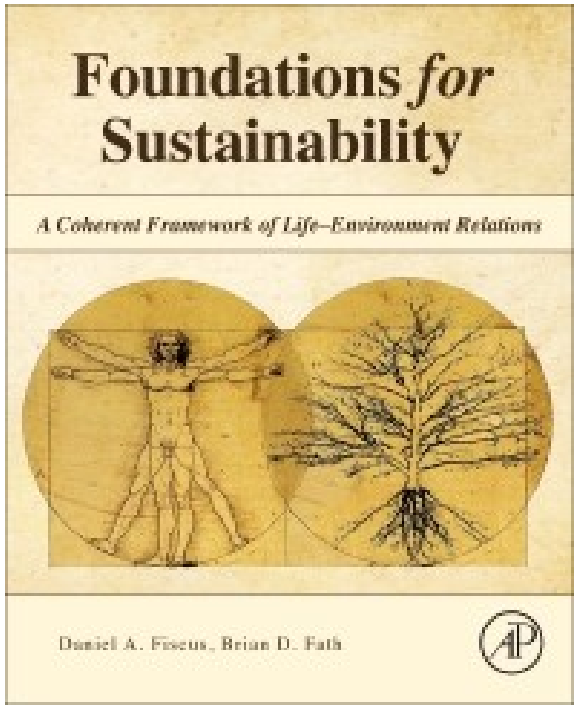

Foundations *for* Sustainability

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Chapter 8: Technology and Applications in the context of holistic Life–Environment

Your reaction

1) Why did M.K. Hubbert depict the fossil fuel era as a very brief event in human history?

2) What is a disadvantage of adding control loops?
    1) Why are autocatalytic ones preferred?

Holistic Technologies

- net increase in the orderliness of the natural and built environment and thus increase syntropy
- is anticipatory and serves long-term goals by protecting Life and its essential environmental context
- is self-referential and uses an internalist orientation to account for its own impacts on the environment

Holistic Technologies
@ your digital solution!

HOLISTIC iT

Holistic Technologies

Energy futures

Is there an energy shortage? What would we do with more energy?

M.K. Hubbert: Our principal constraints are cultural.

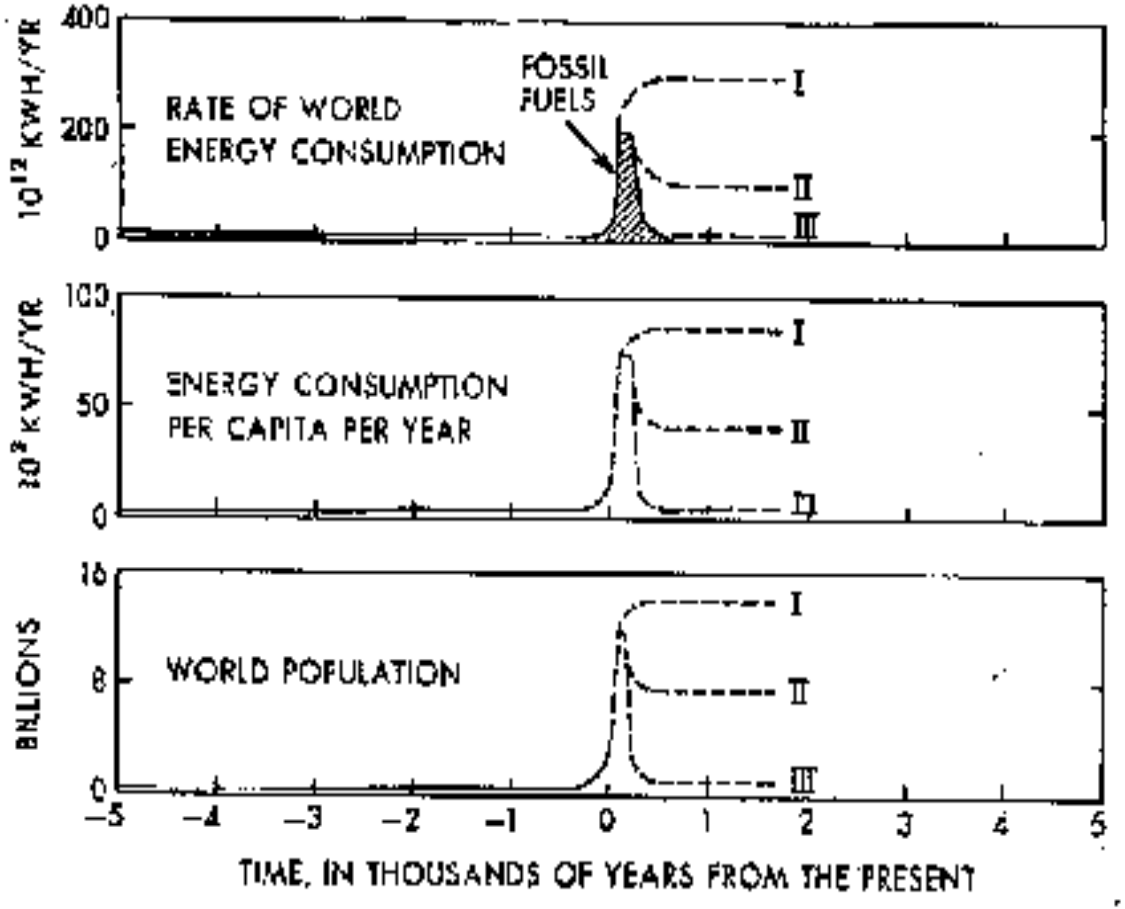


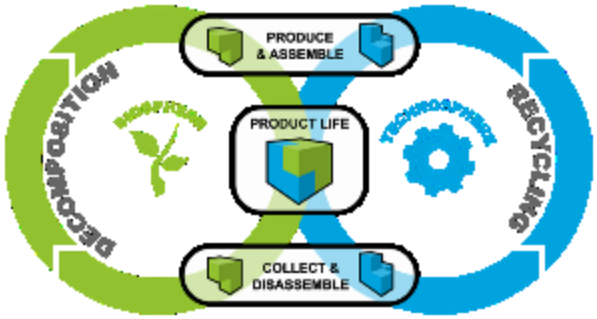
Fig. 1 – human affairs in historical perspective from 5,000 years in past to 5,000 years in future (after Hubbert, 1962, Fig. 61).

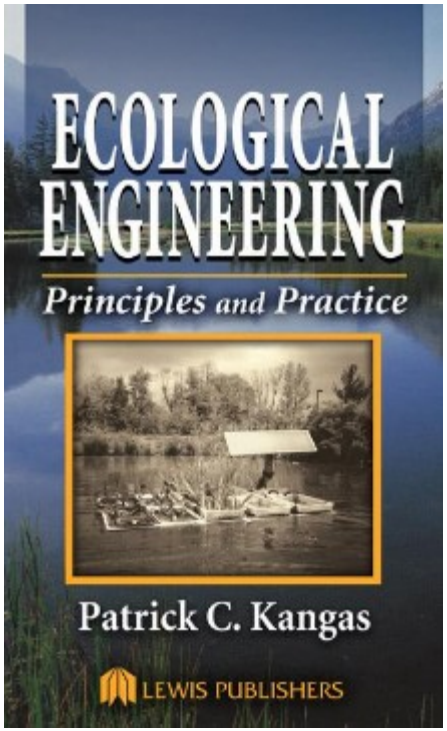
Growth is as dominant a paradigm as the machine

- During the last two centuries we have known nothing but exponential growth and in parallel we have evolved what amounts to an exponential-growth culture, a culture so heavily dependent upon the continuance of exponential growth for its stability that it is incapable of reckoning with problems of non-growth. (p. 210).

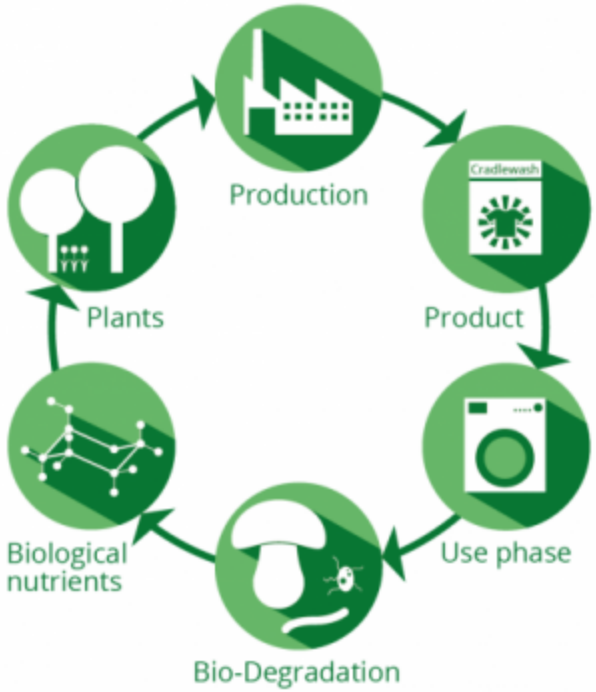
Case studies compatible with Holistic Life Science

- Cradle-to-cradle design
- Biomimicry
- Permaculture
- Ecological engineering



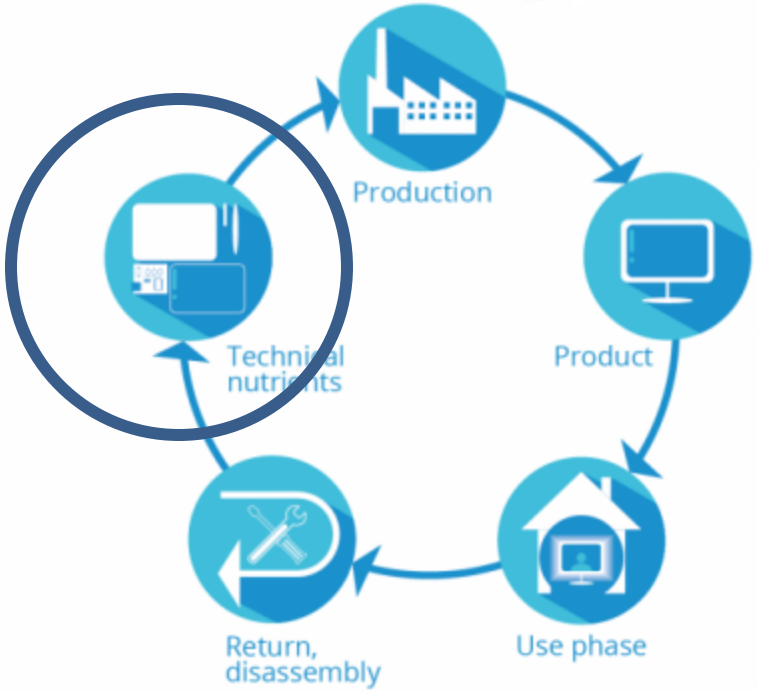


Cradle to cradle



BIOLOGICAL CYCLE

for products for consumption



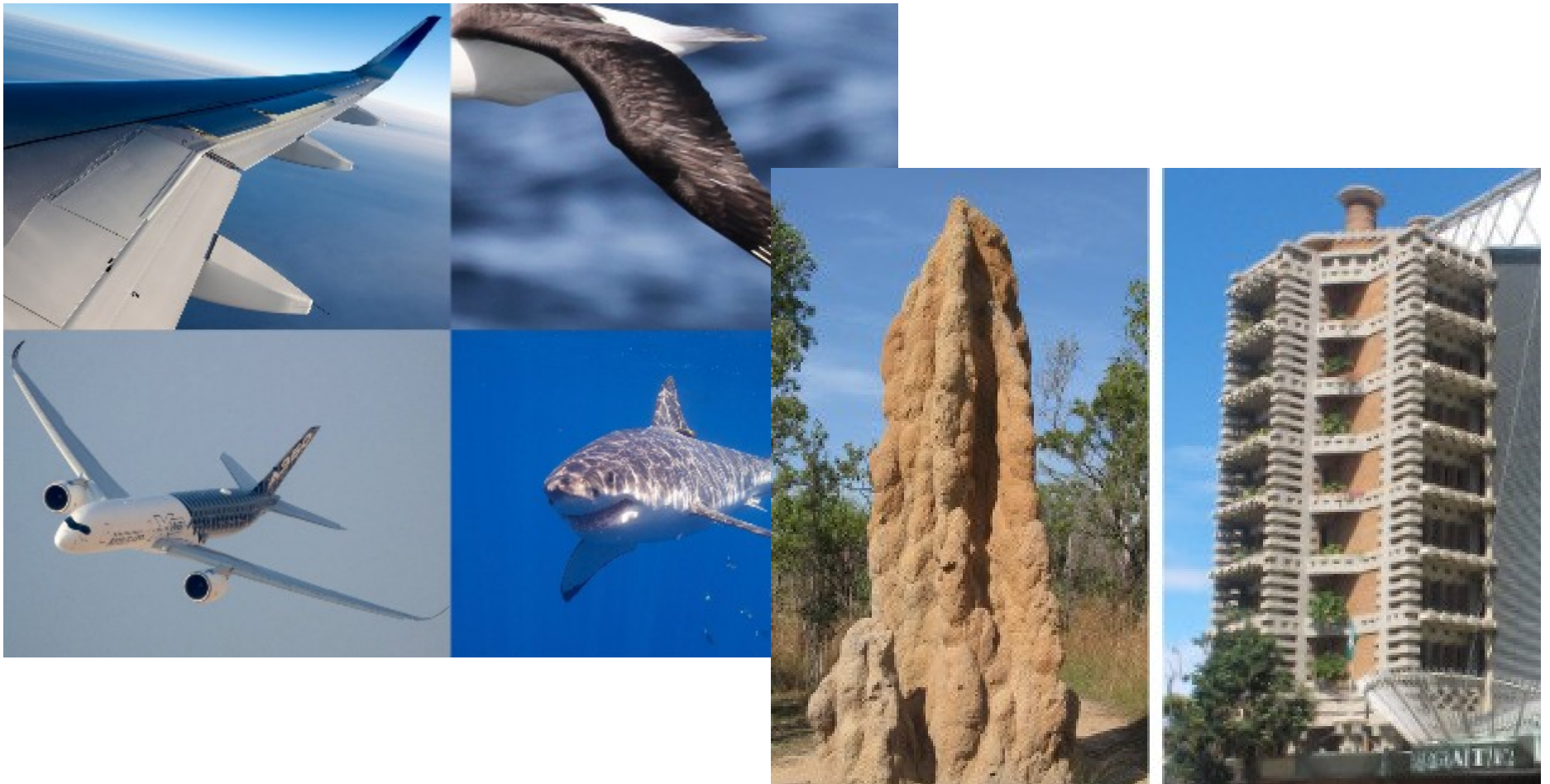
TECHNICAL CYCLE

for products for service

EPEA
The Cradle of Cradle to Cradle

Biomimicry

- Nature inspired design

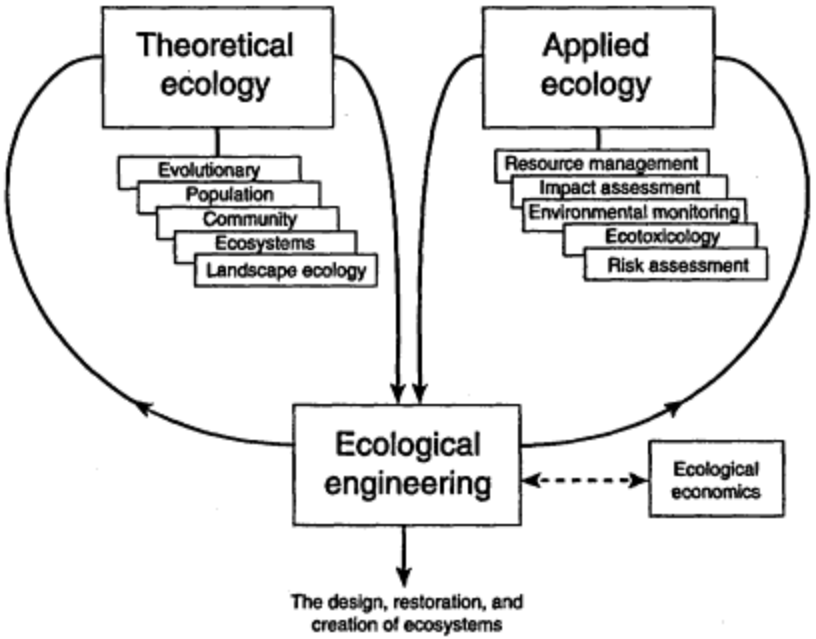


Permaculture

Permanent (Agri)culture:

- *Observe and interact*
- *Catch and store energy*
- *Obtain a yield*
- *Apply self-regulation and accept feedback*
- *Use and value renewable resources and services*
- *Produce no waste*
- *Design from patterns to details*
- *Integrate rather than segregate*
- *Use small and slow solutions*
- *Use and value diversity*
- *Use edges and value the marginal*
- *Creatively use and respond to change*

Ecological Engineering




Wetland water treatment

Holistic Land Development

- How to add more life capacity and support to a site?
- Scale and carrying capacity

www.pecs-science.org/ research/publications/publications/aholisticapproachtostudyingsocialecologicalsystemsanditsapplicationtosoutherntransylvania.5.144972a51495db7dbc812f3.html

Practice what we preach

- Science facilities

- Sustainable Masaryk – what would that look like?

European Spallation Source

Challenges

- Why reductionism wins
  - Need an answer now
  - Need to look like we are doing something
  - People are hungry
  - People need a job
  - People need something to do (Closure of efficient cause)

Discussion questions

- How much of the fossil dividend do we allocate to Sustainers or transcenders?
  - None of the scenarios in Figure 8.1 involve continued growth
  - What does success look like?

- Human sense of self evolves to embrace both a discrete self and sustained self. Is that crazy talk?

- Is the best we can do with sustainability to be “less bad”?

- Is there a common aspect of the counter technologies?
  - Other examples?