



# Best Practice –Tech and innovation in the consulting engineering fraternity

Richard Ahlschlager



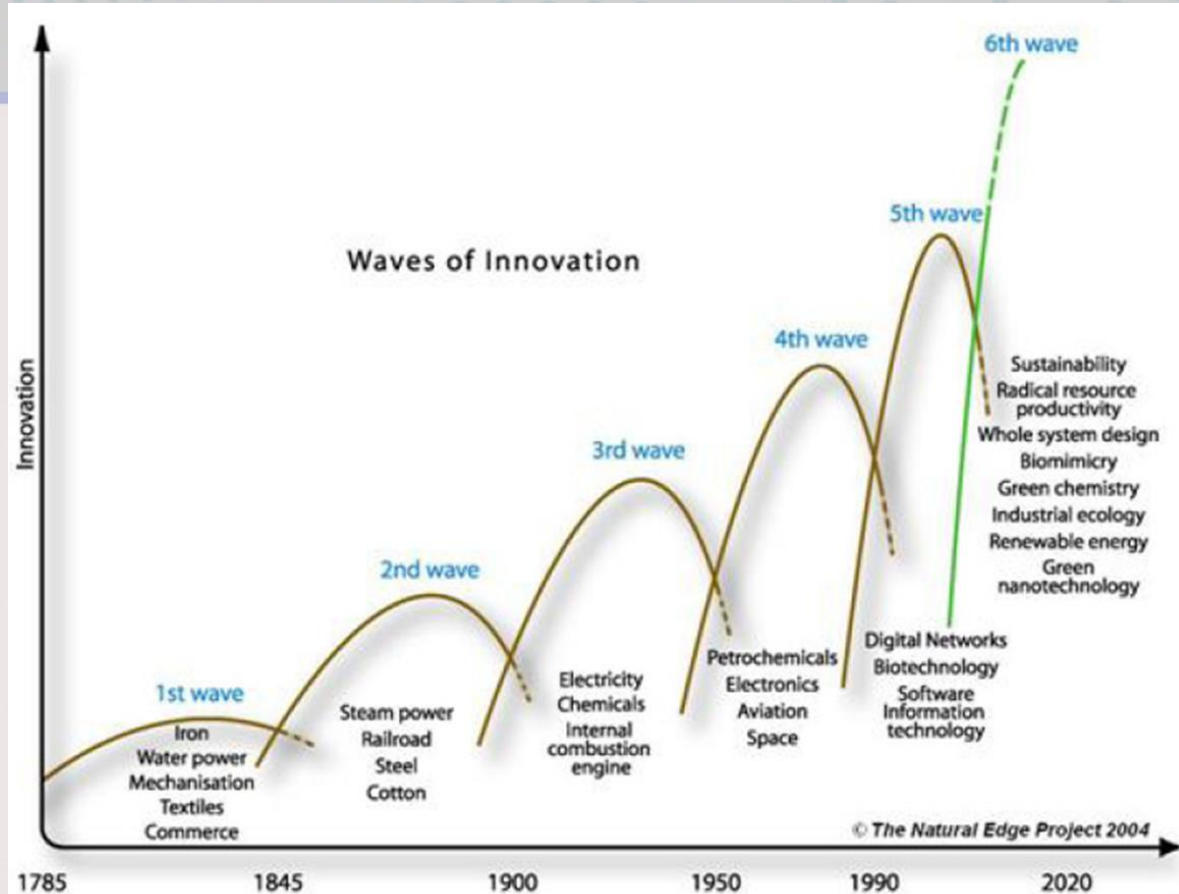
# Innovation vs Simplistic Thinking

One of the major dilemmas we face both as individuals and as a society is simplistic thinking – or the failure to think at all. It isn't just a problem, it is the problem...Thinking well is more urgent now – perhaps more urgent than anything else – because it is the means by which we consider, decide and act upon everything in our increasingly complex world...

– M Scott Peck from *The Road Less Travelled and Beyond* (1997)

# Innovation and Disruption

- Innovation creates value creating disruption which destroys value



# Front end and back end innovation



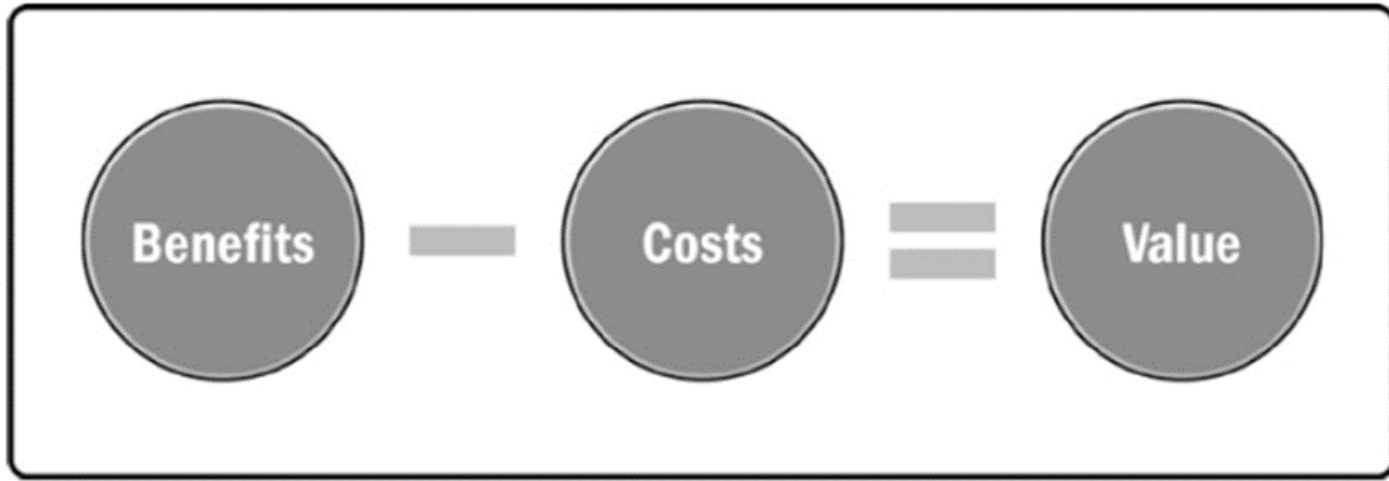
## Front End Innovation

- Playful, open-minded risk taking
- Focus on the job to be done
- Generate the right ideas
- Fail fast and cheap
- Repeat cycle to learn

## Back End Exploitation

- Linear, stage-gate thinking
- Design right the first time
- Focus on design for X  
*(performance, reliability, maintainability, etc.)*
- Systematic product design

# Engineering Value and Benefit

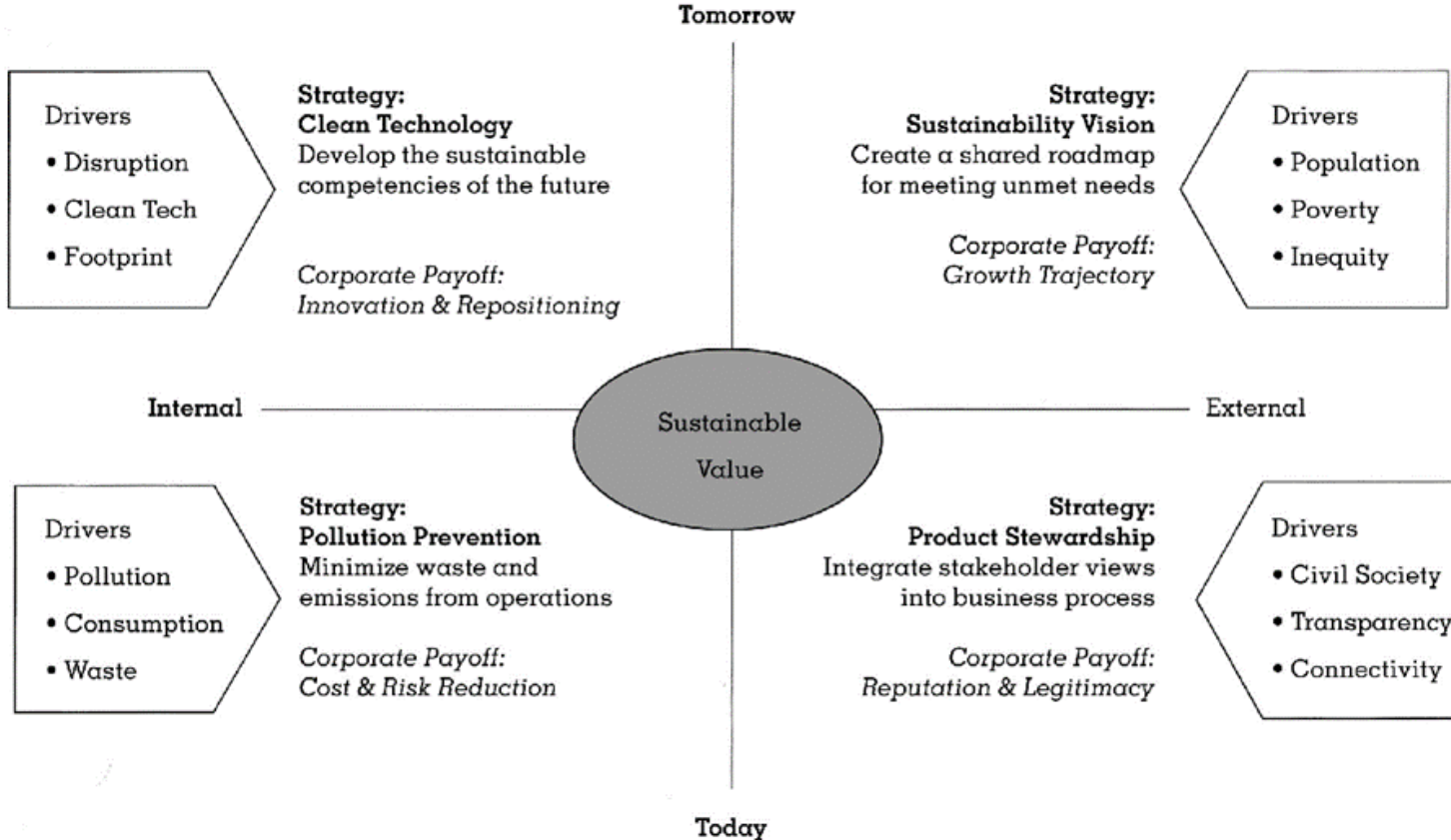


Source: PMI 2019

- We often plan & design to project outputs and not project outcomes – benefits and value are not assessed

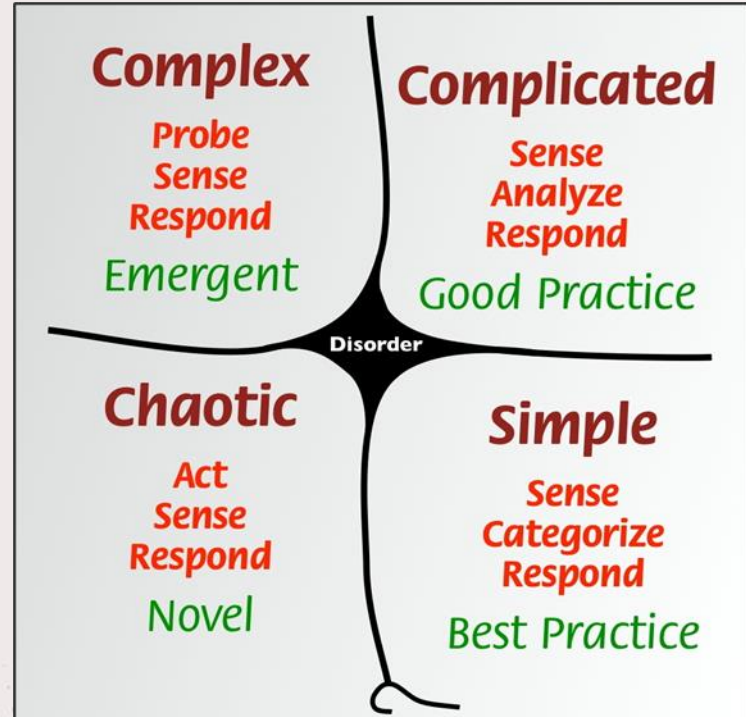


# Sustainable Value



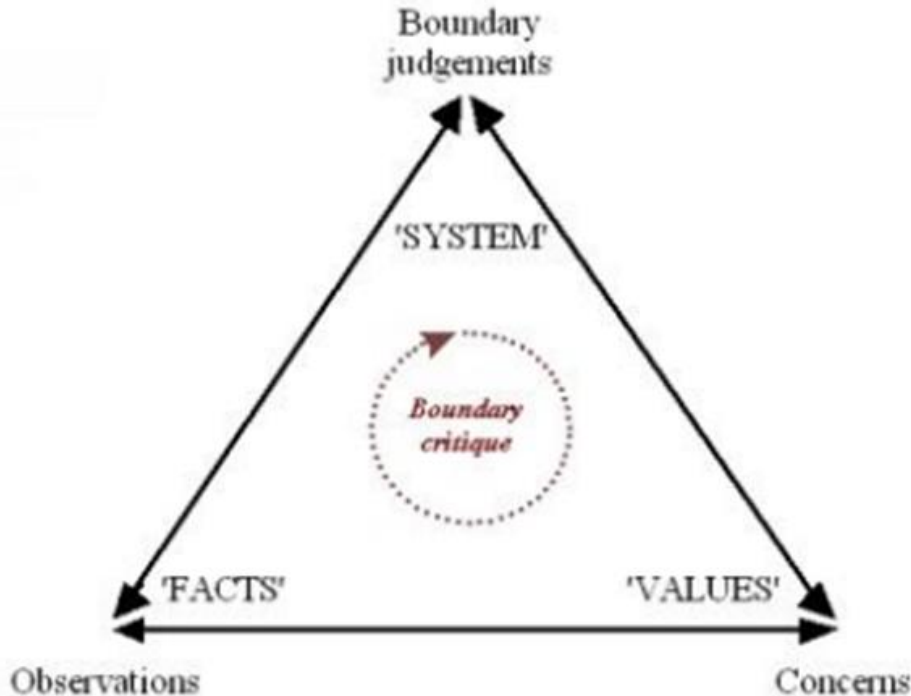
# Complex vs Complicated

- Our projects are rapidly shifting from Complicated to Complex
  - Stakeholders
  - Politics
  - Technology
  - Governance



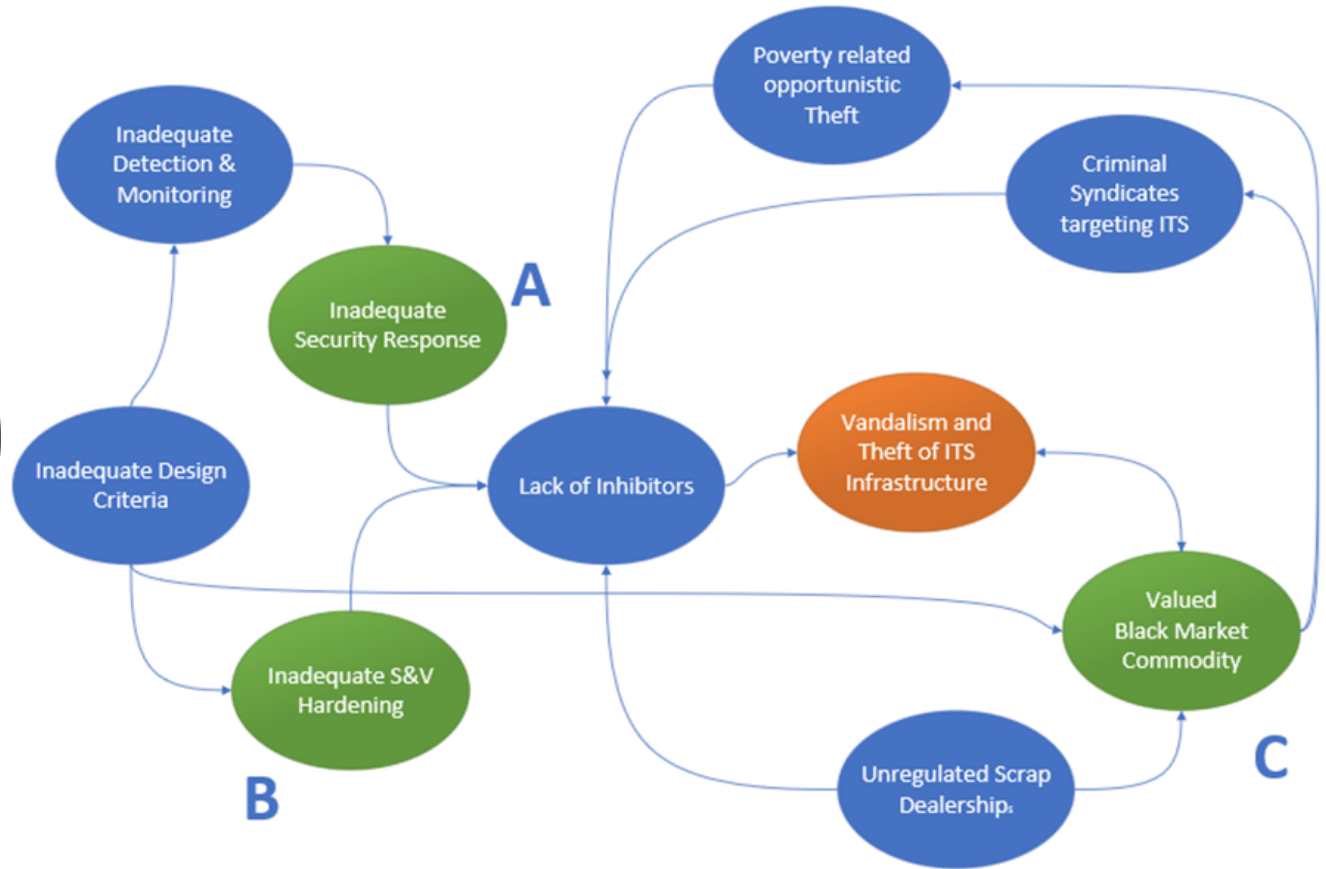


# Professionals, Boundary Judgments and 'Good' Citizenship vs 'fit for purpose'



- Are you and 'expert' in your field?
- Professional inertia & narrow thinking
- Professionals need Humility and self critique
- Good 'citizenship' creates legitimacy

# Causal Analysis - Theft & Vandalism



# Sustainable Innovation

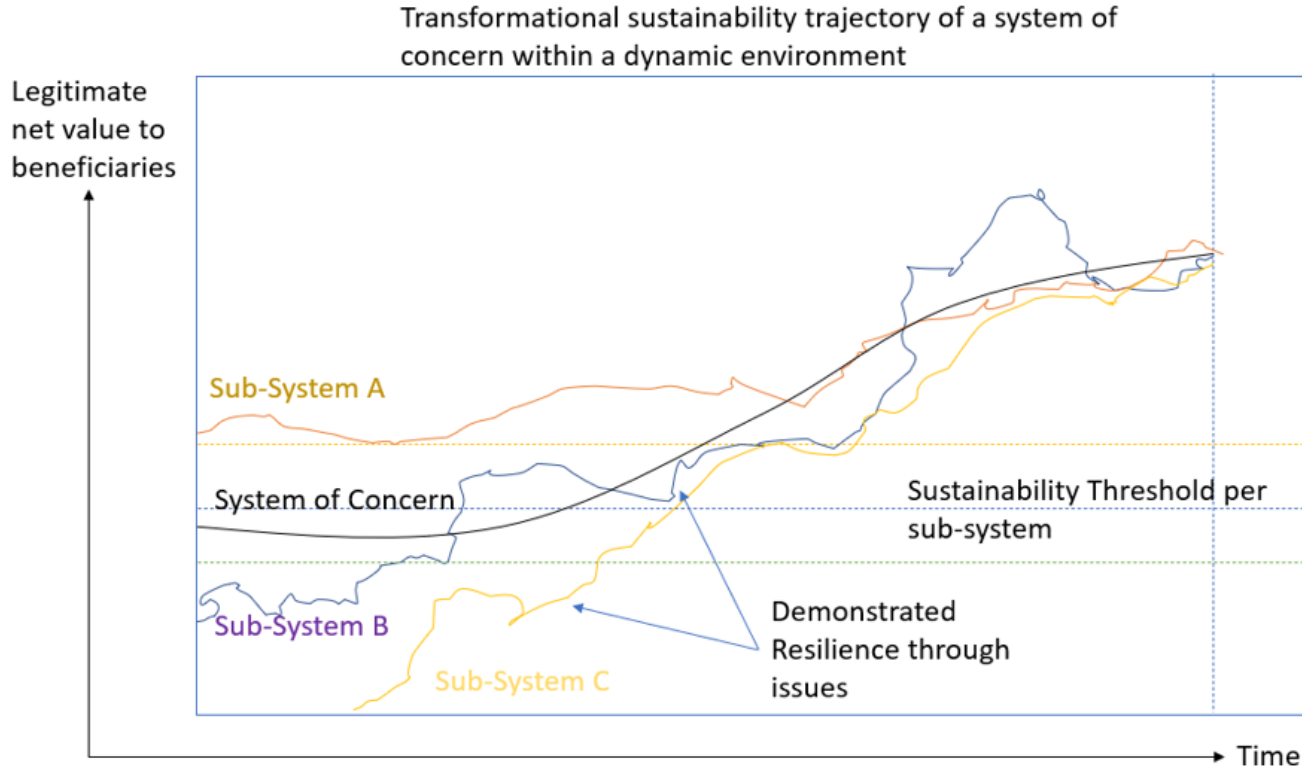


Figure 4: Transformational sustainability trajectory of a system of concern within a dynamic environment  
– source: author

# To close

- We need to transform our development agenda
- This requires a change in approach to complexity
- Engineers have the opportunity to lead this
- It is all about creating legitimate value not deliverables
- Solutions need to be fit for purpose and sustainable