Thinking: A Toolkit

Problem Solving
- Problem formulation
- General alternatives
- Select an approach
- Implement

Analytical Thinking
- "What if" analysis
- Risk analysis
- Uncertainty
- Upside / downside

Scientific Thinking
- Processes
  - Observations
  - Hypotheses
  - Testing / verification
  - Theories
- Approaches
  - Qualitative
  - Quantitative
  - Mixed methods

Strategic Thinking
- Vision
- Goals / objectives
- Forces of change - external
  - Economics
  - Technology
  - Demographics
  - Government / Law
  - Physical / Ecological
  - Society
  - Competition
- Forces of change - internal
  - Resources
  - Capabilities
  - Leadership Desire
- Interaction of forces
  - SWOT analysis
- Strategies / responses
  - Grand strategies
  - Responses to external forces
  - Action plans

Reflective Thinking

Critical Thinking
- Critical Thinking
  - Elements of reason
    - Point of View
    - Purpose
    - Question at Issue
    - Data
    - Assumptions
    - Concepts
    - Conclusions
    - Implications and Consequences
  - Standards
    - Clear
    - Accurate
    - Precise
    - Logical
    - Relevant
    - Fair
    - Breadth
    - Depth
  - Other principles
    - Reasonable
    - Rational
    - Consistent
    - Falsifiable
    - Testable
    - Well organized
    - Authenticated
    - Effective
    - Factual
- Reporters Questions
  - Who (stakeholders)
  - Why (purpose)
  - What (content)
  - How (process)
  - When (time)
  - Where (geography)
- Five Whys
  - Why?
  - Why?
  - Why?
  - Why
  - Why
- Fallacies
  - Appeal to emotion
  - Slippery slope
  - others ...
- Compare / Contrast to baseline
- Type I Errors
- Type II Errors

Abstract Thinking
- Specifics to generalities
- Apply generalities to new fields
- Generalities to specifics

Creative Thinking
- SCAMPER
  - Substitute
  - Combine
  - Adapt
  - Modify
  - Put to other purposes
  - Eliminate
  - Rearrange / reverse

Systems Thinking
- Personal mastery
- Shared vision
- Team Learning
- Mental models
- Archetypes
  - Limits to growth
  - Success to the successful
  - Tragedy of the commons
  - Escalation
  - Accidental adversaries
  - Growth and under investment
  - Fixes that fail
  - Shifting the burden
  - Eroding goals
  - Feedback
    - Positive feedback loops
    - Negative feedback loops

Persuasive Thinking