EXPLORING PUBLIC PARTICIPATION CHOICES

A MENTAL MODEL APPROACH

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Objectives

- Research objectives and methodology
- Phase I findings
- Roundtable discussions
- Explore practical knowledge and applications

RESEARCH OBJECTIVES AND METHODOLOGY

Problem Statement

Much can yet be learned about how people choose to engage in Superfund controversy so that improved public participation processes can be developed that help people to make better public participation choices.

Problem Statement (cont.)

1. Implies people make suboptimal choices, but why and how?
   a. Literature weighted toward experienced and expert assessments of what's best
   b. Under recognizes how the "average" person approaches controversy
2. To make process improvements people will use, we should recognize and understand current thinking.
3. Otherwise, if we build it, they may not come!

Integrating Lay and Expert Perspectives

"Further study of people's normative beliefs concerning participatory decision-making in different contexts is badly needed. Bringing expectations of actual participants to light is an important first step forward in the development of a general theory of public participation."

Webler, Thomas and Tuler, Seth, 2002. *Fairness and Competence in Citizen Participation: Theoretical Reflections from a Case Study*, prepared for the Social and Environmental Research Institute, Leverett, MA, February.

Research Question and Hypotheses

How do different types of stakeholders think about and make decisions to engage in public participation around the clean-up of Superfund sites?

Hypotheses:

1. The cognitive thought processes used by individuals and groups of individuals to make public participation decisions can be identified.
2. Different stakeholder groups utilize different thought processes to make decisions about public participation.
3. Thought process differences between stakeholder groups relate to preferences for certain forms of public participation.

Applications and Benefits

- Identify similarities and differences in how people think about public participation
- Design improved public participation programs and processes
- Better enable individuals to make wise public participation choices.

Mental Models Approach

1. ***Create Expert Influence Diagram***
2. ***Mental Model Interviews***
3. ***Confirmatory Questionnaires***
4. ***Development of Communications***

Risk Communication: A Mental Models Approach. Morgan, Fischhoff, Bostrom, and Atman, 2002.

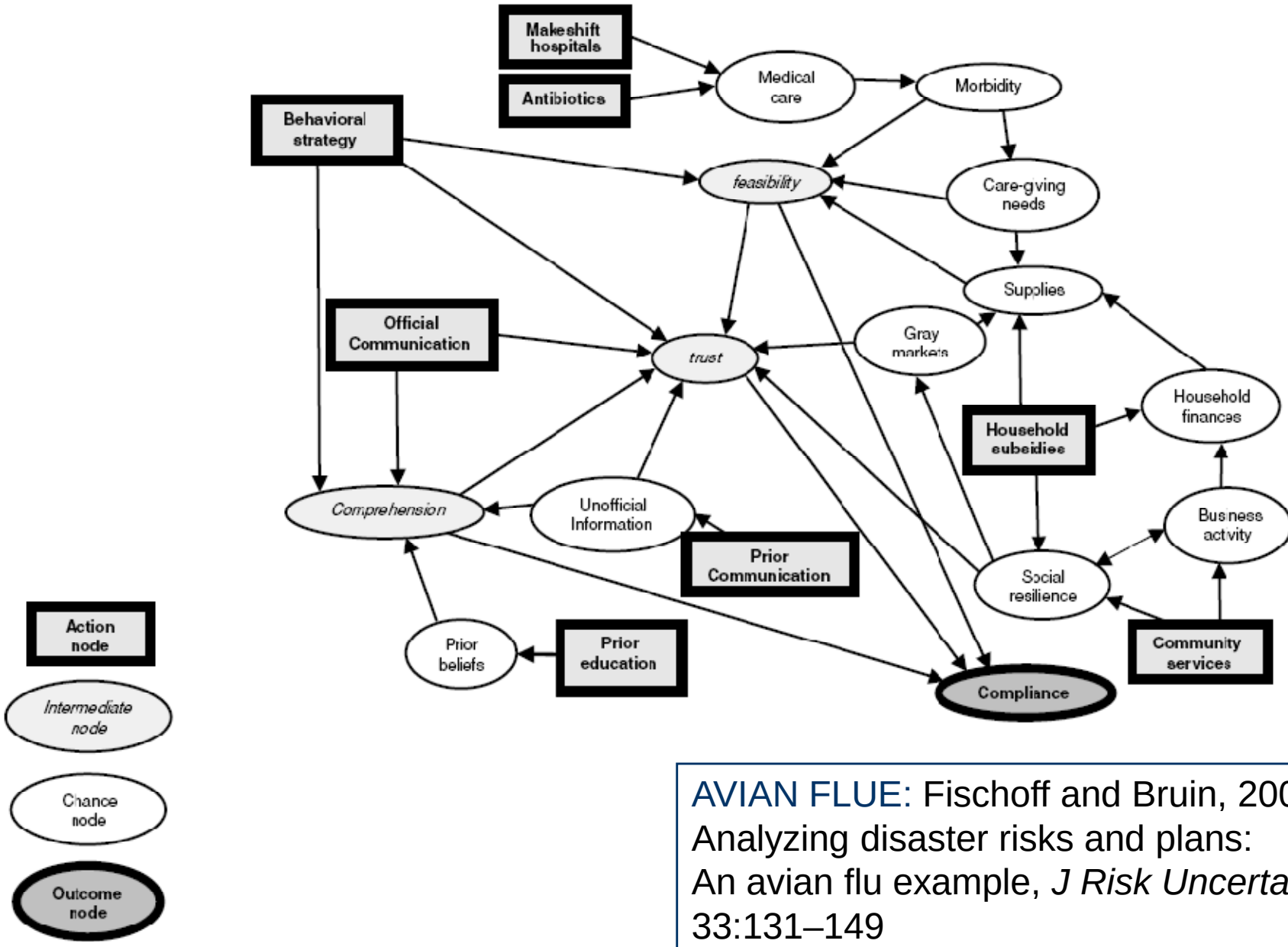
What is a Mental Model?

An inclusive, theoretical and conceptual framework and set of assumptions conveying the thought processes people use to make a decision.

- Normative: what should be
- Instrumental: what is

Uses a system of nodes and arrows to illustrate relationships.

- States of the world/Uncertain circumstances
- Choices



AVIAN FLUE: Fischoff and Bruin, 2006. Analyzing disaster risks and plans: An avian flu example, *J Risk Uncertainty*, 33:131–149

Fig. 3 Second-level model for factors shaping compliance with a behavioral intervention. Ovals indicate uncertain variables, which need to be predicted. Rectangles indicate actions, which need to be planned and implemented

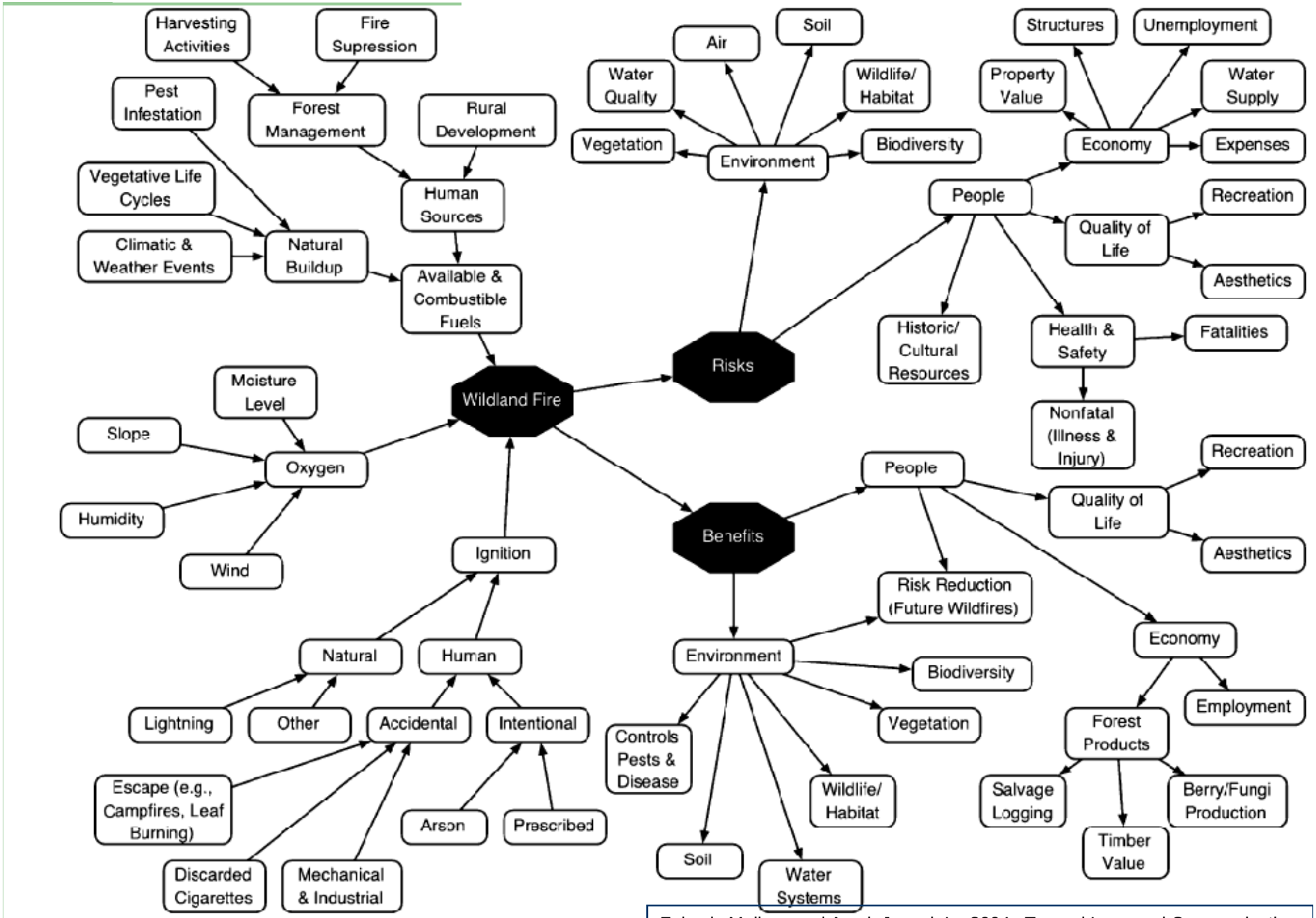


Fig. 1. Comprehensive wildland fire mental model.

Zaksek, Melissa and Arvai, Joseph L., 2004. Toward Improved Communication about Wildland Fire: Mental Models Research to Identify Information needs for Natural Resource Management, Risk Analysis, Vol. 24 (6), p. 1503-1514).

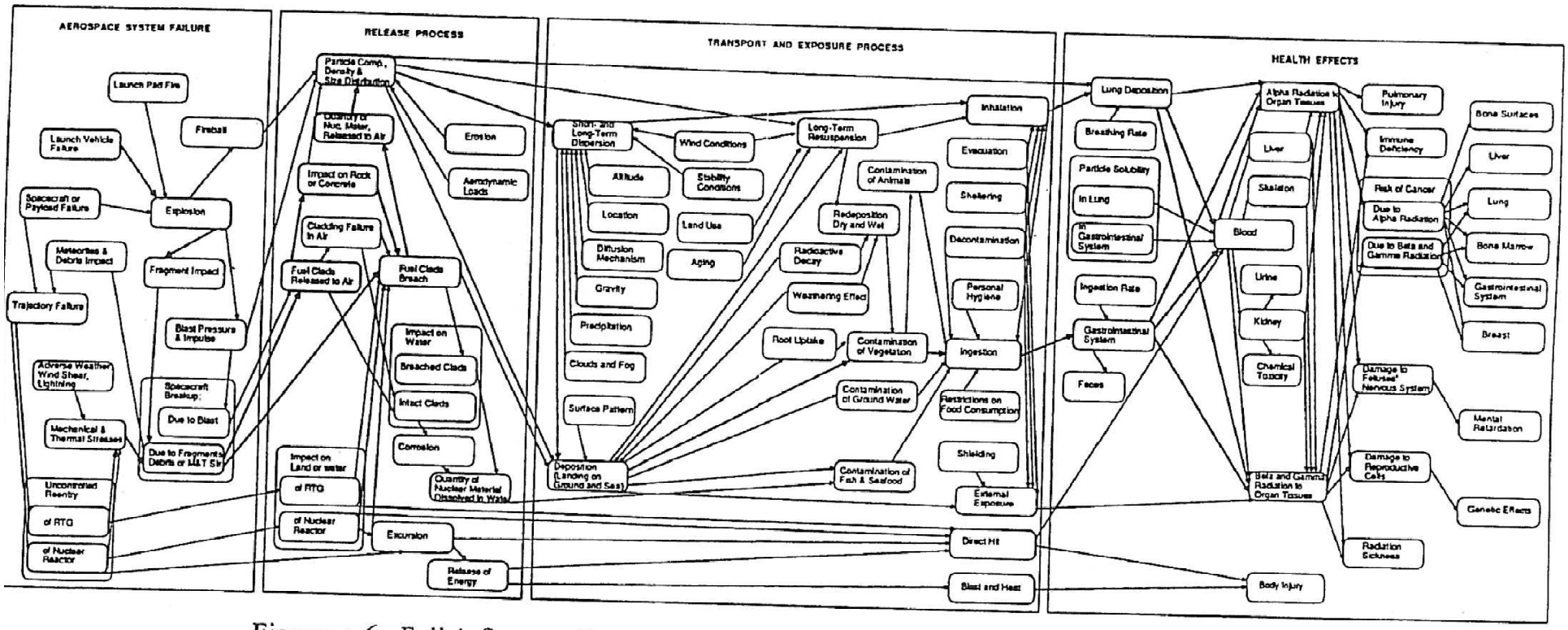


Figure 3.6. Full influence diagram of risks from nuclear energy sources on spacecraft. *Source:* Maharik (1992).

Morgan, Granger; Fischhoff, Baruch; Bostrom, Ann; Atman, Cynthia, 2002. *Risk Communication: A Mental Models Approach*, Cambridge University Press, New York, New York

Questions to Ask in Mental Model Reviews[1]

Node review

Complete the following for each node:

1. Name of variable (or vector of related variables)
2. Possible values of the variable(s)
3. Possible procedures for measuring variable
4. Methods for measuring variables

Single link review

Complete the following for each link:

1. Names of nodes involved.
2. Simple statement of the link (e.g., X causes Y because; X is a good indicator of Y because).
3. If there are multiple variables at a node, does this simple statement hold for each combination of variables? (If not, consider partitioning the variables into separate nodes.)
4 Source and strength of claim for link. (Use dashed lines for speculative links or ones whose existence is in dispute.)
5. (optional) Strategies for studying link.
6. (optional) Strategies for affecting link.

Multiple link review

Complete for each link:

1. Does it go into a node that also has only one link going out? (If so, the intermediate node could be eliminated, unless having it provides a useful reminder of the connection between the nodes that it separates.)
2. Does it have the same input and output arrows as another link? (If so, consider combining them or representing that area in the influence diagram as a single topic in a higher-order [simpler] model.)
3. Is it part of a circular chain of links? (If so, identify the time dependency among the links—or group the chain in a single node, with its own internal dynamics.)

Overall model review

1. Are critical endpoints easily identifiable?
2. Would connecting any pair of unconnected nodes add predictive value?
3. Is there feedback from the endpoints to the initial conditions (indicating temporal dynamics)?
4. Are there important “index variables” that affect many model values, within the basic structure (e.g., gender: for a disease with different expressions for men and women)?

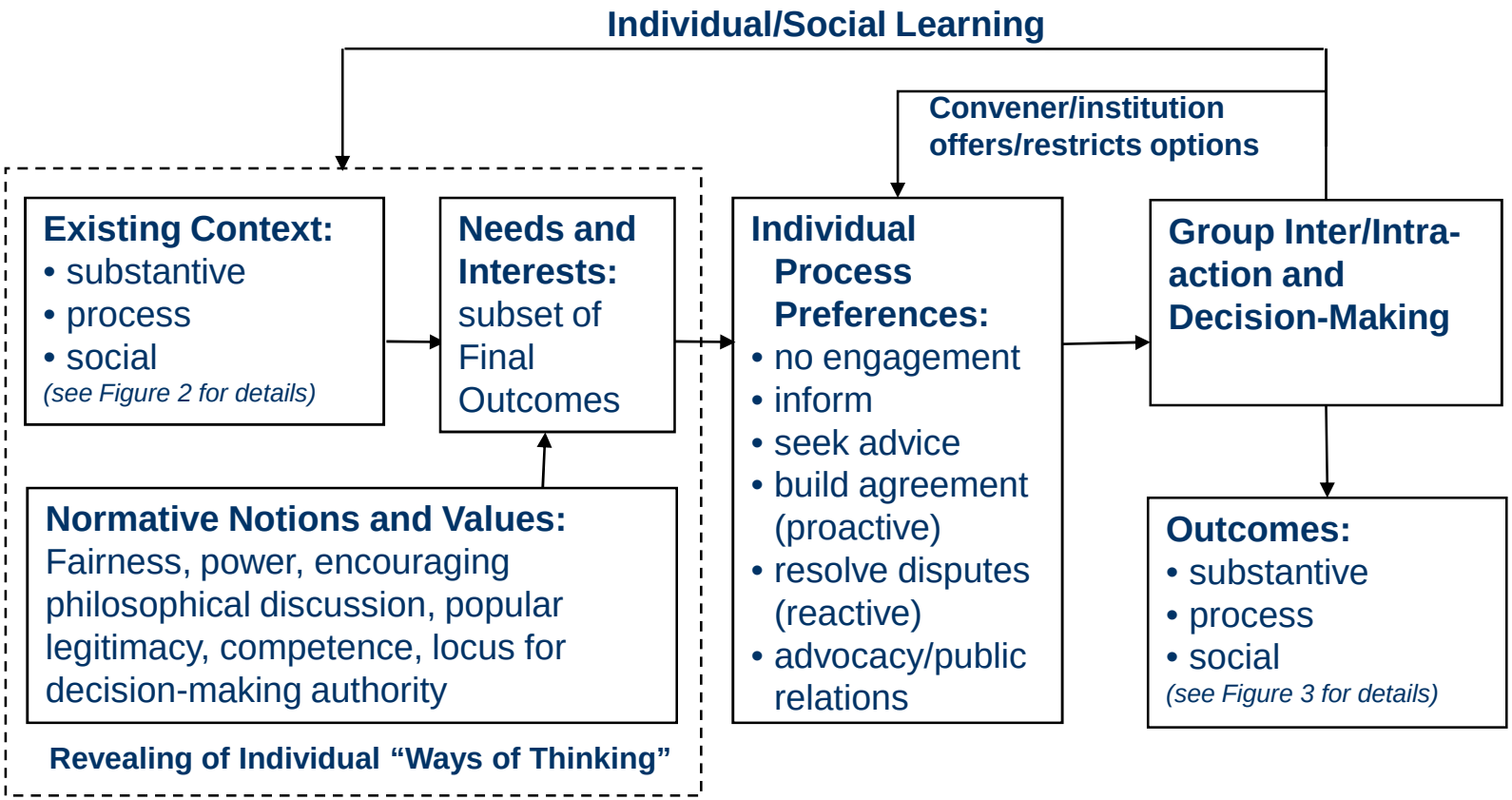
[1]Fischoff and Bruin, 2006. Analyzing disaster risks and plans: An avian flu example, *J Risk Uncertainty*, 33:131–149

Phase I Results

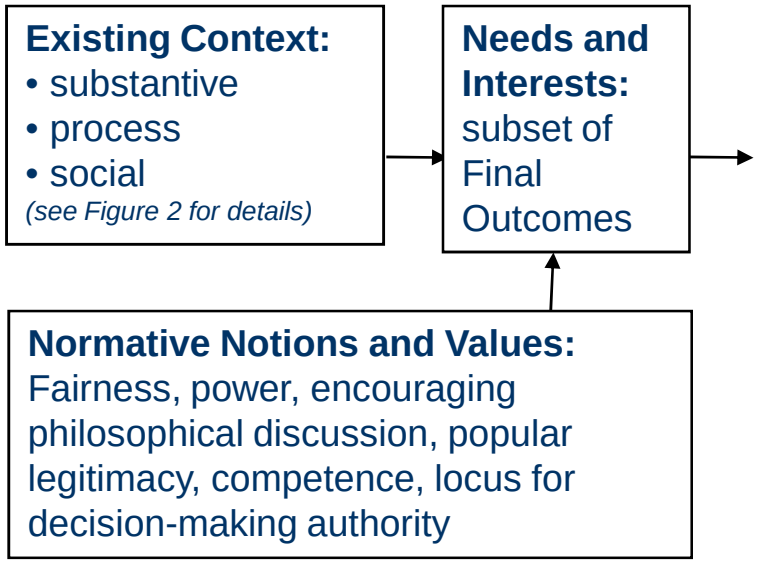
Existing Negotiation Theory

- People engage in public participation in ways they think will best meet their needs and interests.
- This theory presumes:
  - people are “rational” actors
  - they understand their needs and interests
  - they choose from among the options known to them the approach(es) they think will best meet their needs and interests.

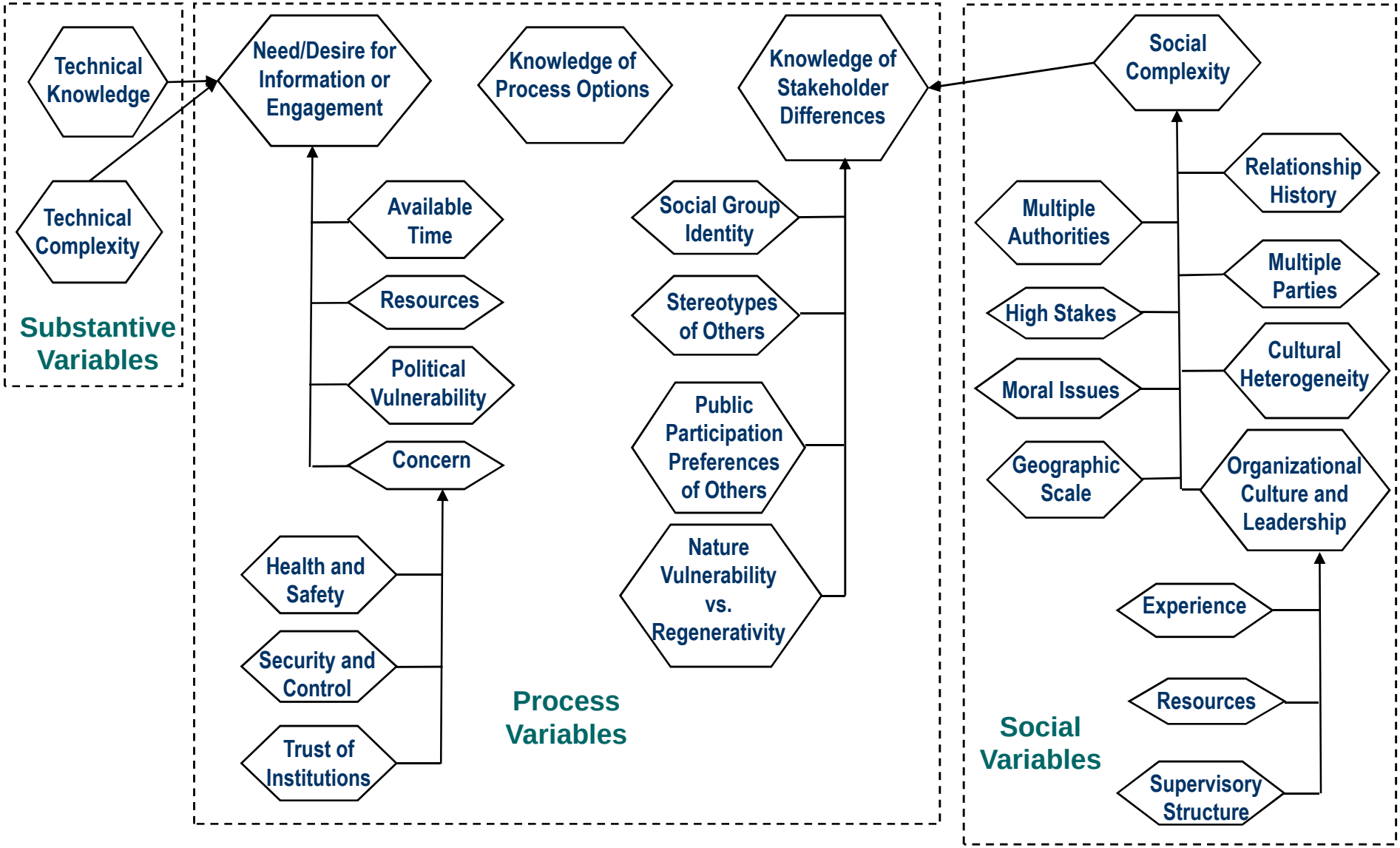
Mental Model of Public Participation Decision-Making



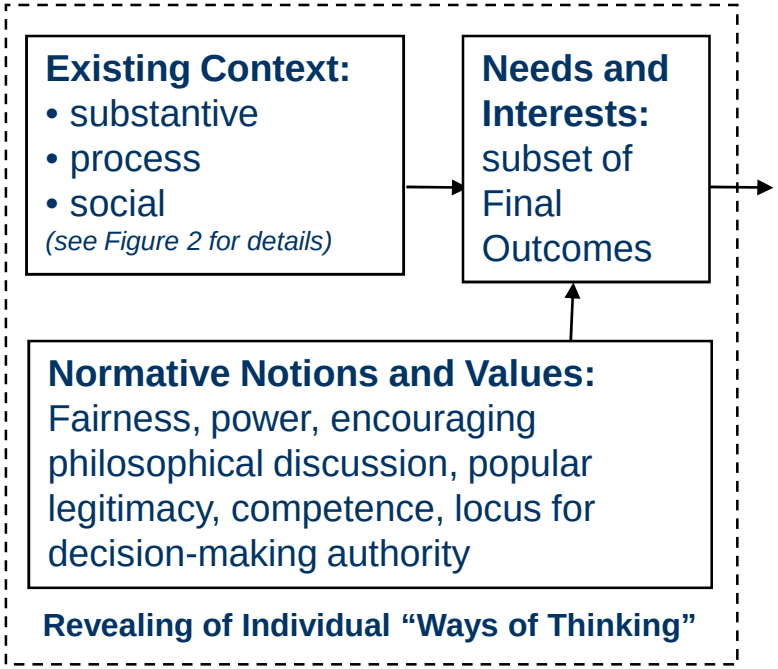
Needs and Interests



Existing Context

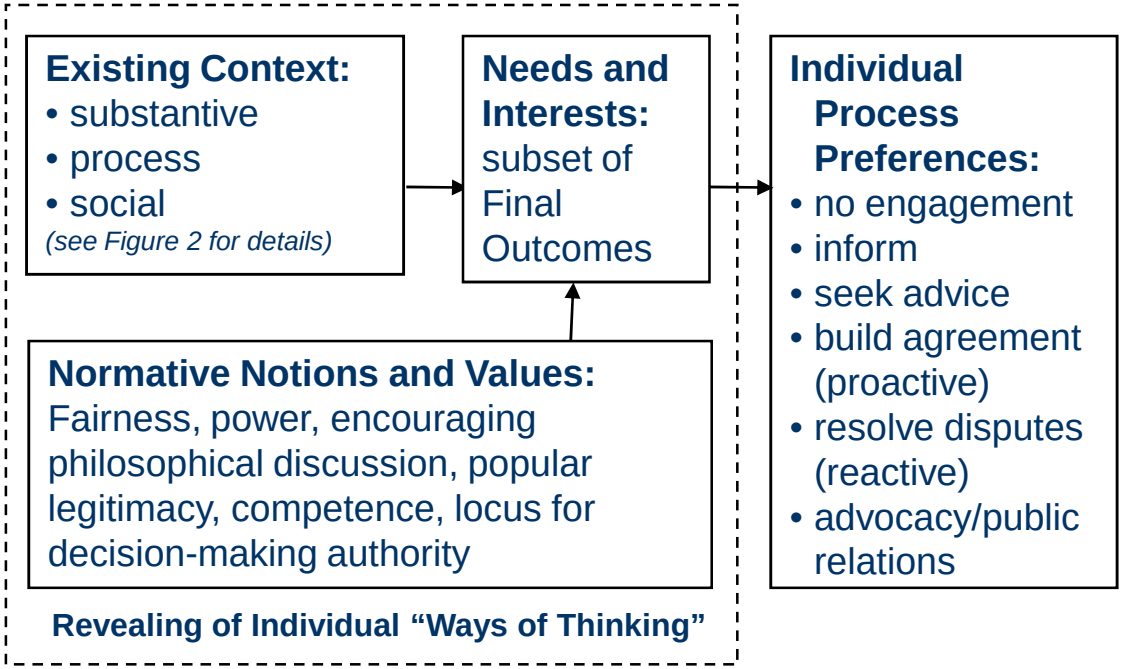


Individual Ways of Thinking

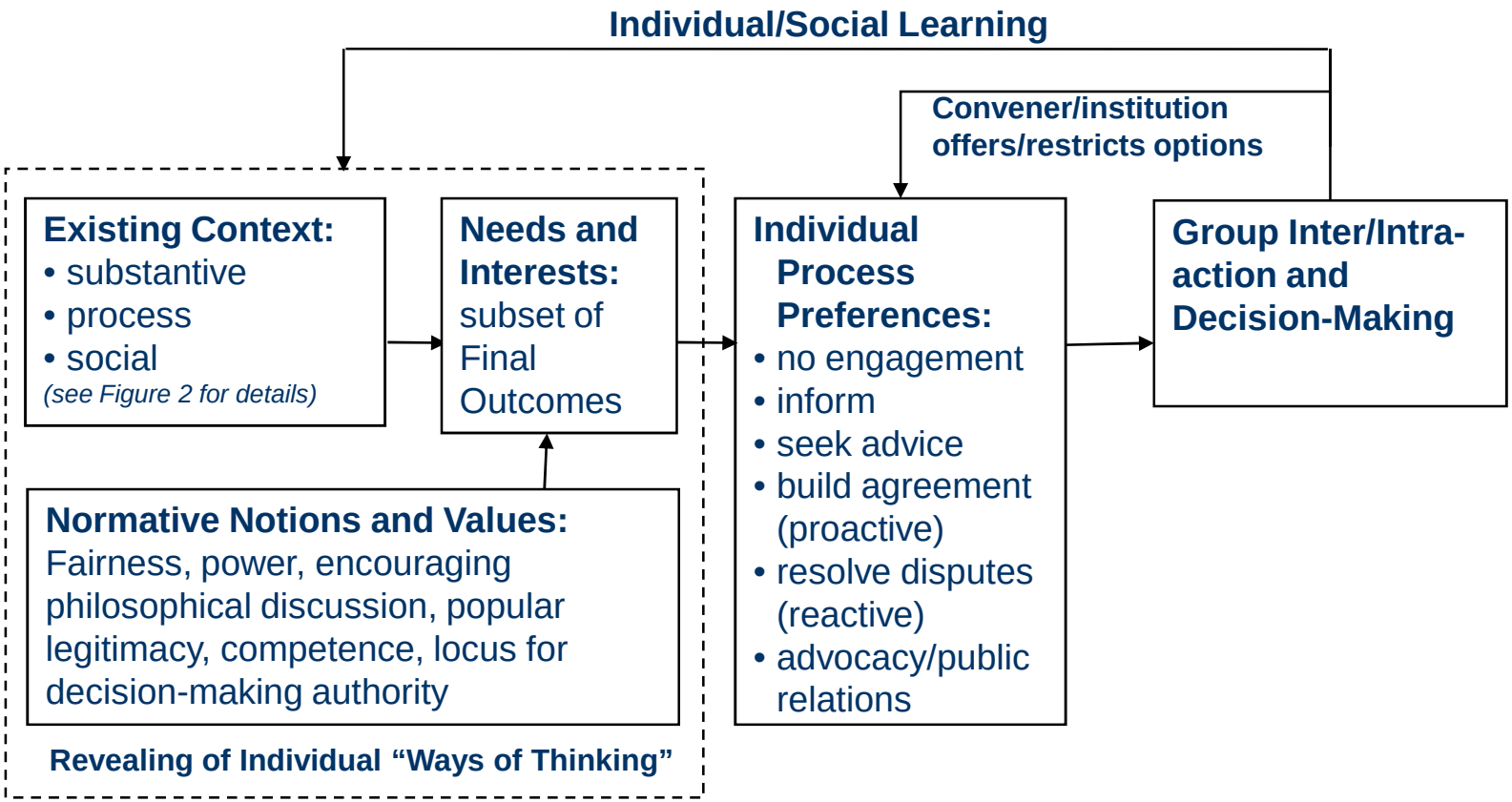


- "Rational" Actors
  - Mental Model Theory
  - Heuristics
  - Affect
  - Epistemic Risk Perspectives
  - Cognitive Negotiation Bias
- Output is more than the sum of the inputs

Individual Process Preferences



Intermediate Outcomes



Final Outcomes

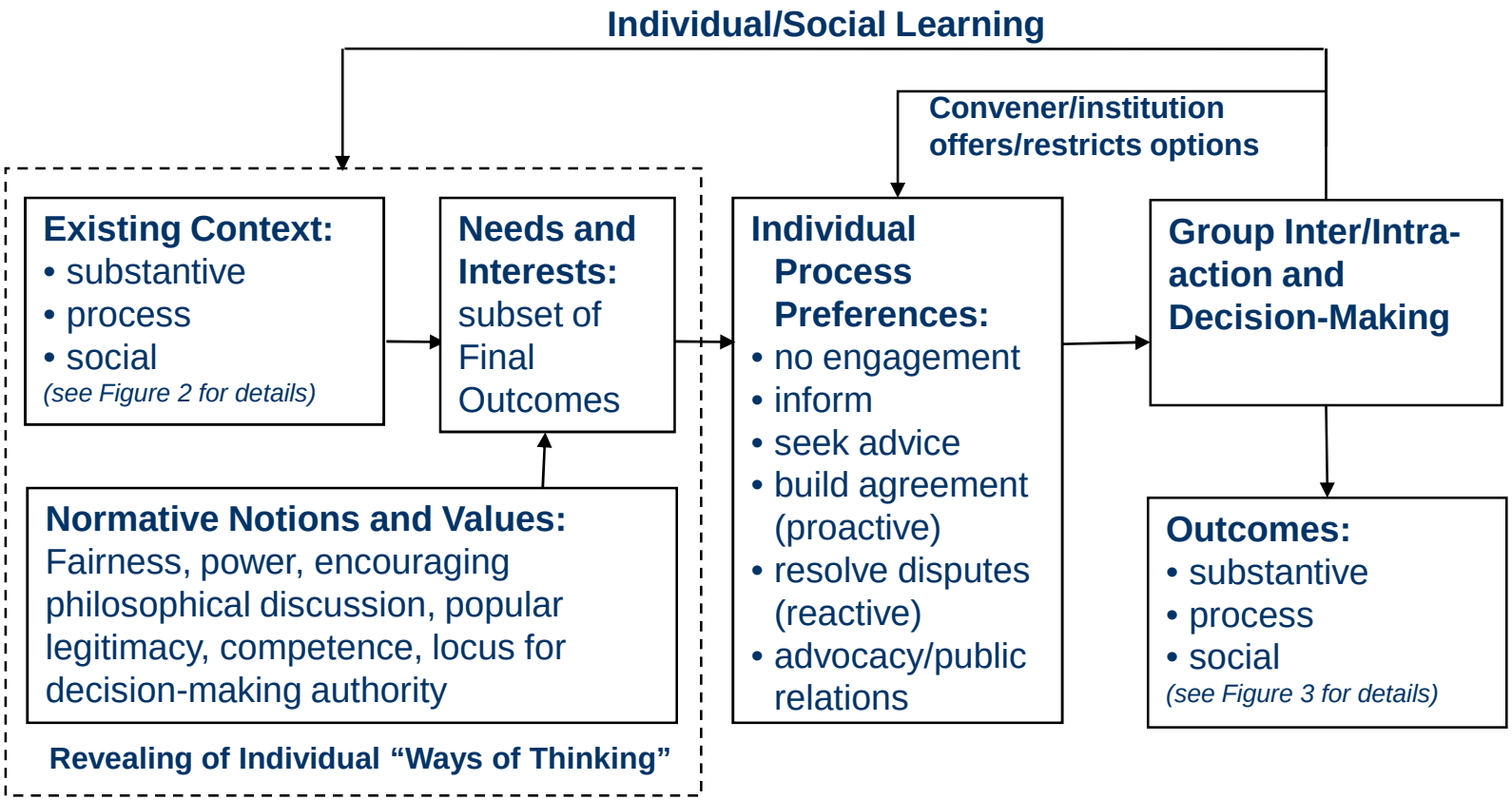
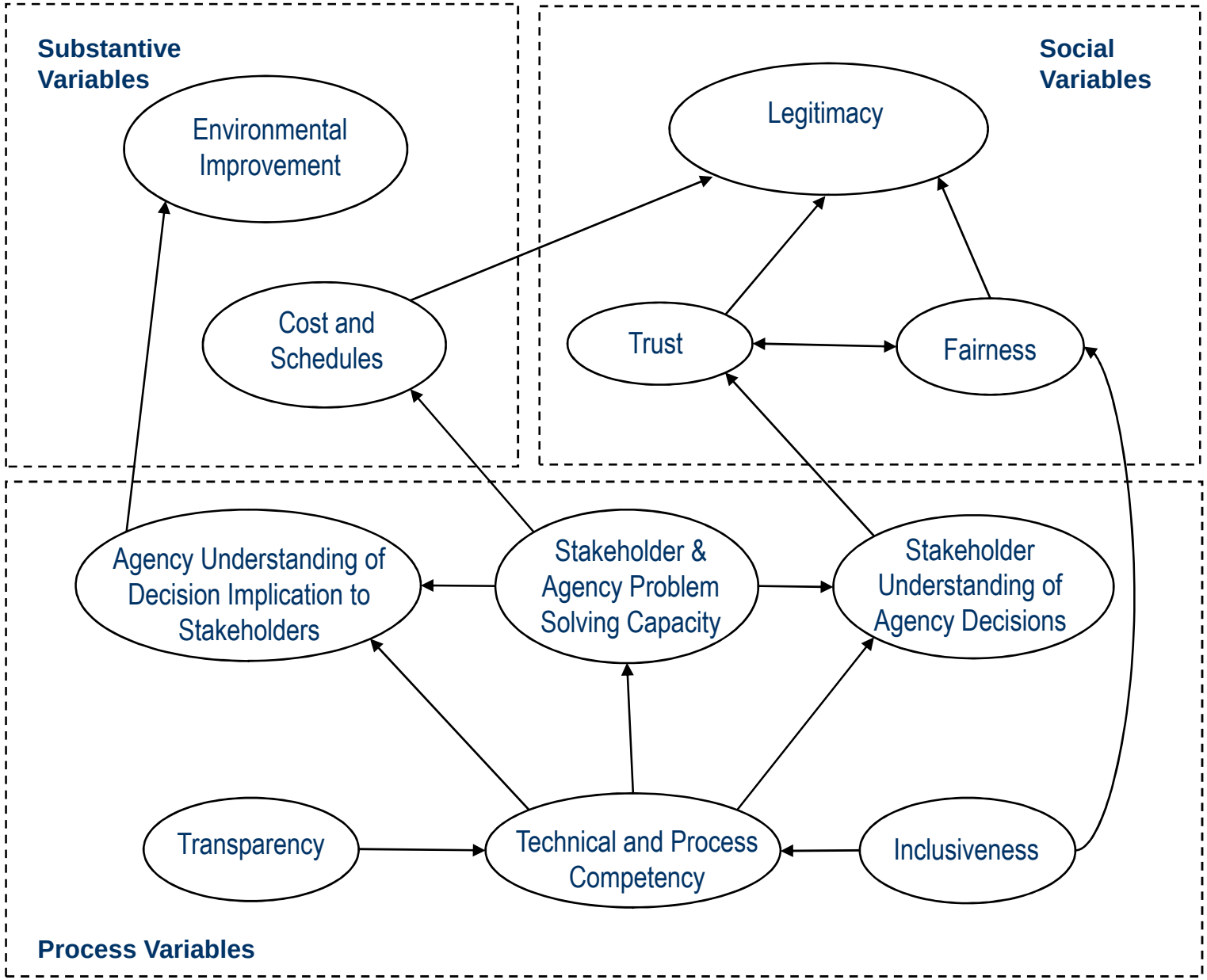


Figure 3 of the Mental Model



Considerations in Application

- Model Construction
  - Simplifying a complex phenomenon
  - Build through Falsification
  - Contextual nature of terms leads to rejection by those more comfortable with rich-text oriented research
- Does not define “better”: Best Process nor, Best Outcome

Thought Process Summary

- Explicit selection of Needs and Interest from the full range of generally recognized outcome expectations,
- Assessing the contextual influences and Ways of Thinking about Needs and Interests, and
- Knowledgably selecting a public participation process that can best meet Needs and Interests.

PRACTICAL KNOWLEDGE AND APPLICATIONS

Practical Knowledge and Applications

- **Develop a simple tool for understanding decision-making processes**
- **Compare and contrast ways of thinking**
- **Identify barriers to using existing tools and expertise**