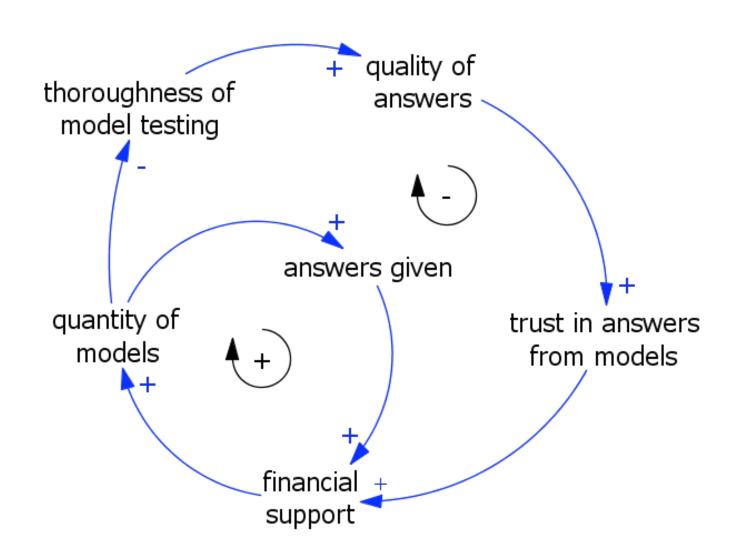
### Challenges

- The world is confusing, but we need to know how to act anyway
- Model conclusions in which we have confidence <u>are not</u> adopted (carbon accumulation)
- Model conclusions that we are confident are incomplete <u>are</u> adopted (CGE)
- Building models is slow, inefficient and costly

#### How to beat Microsoft?



# One winning theory?

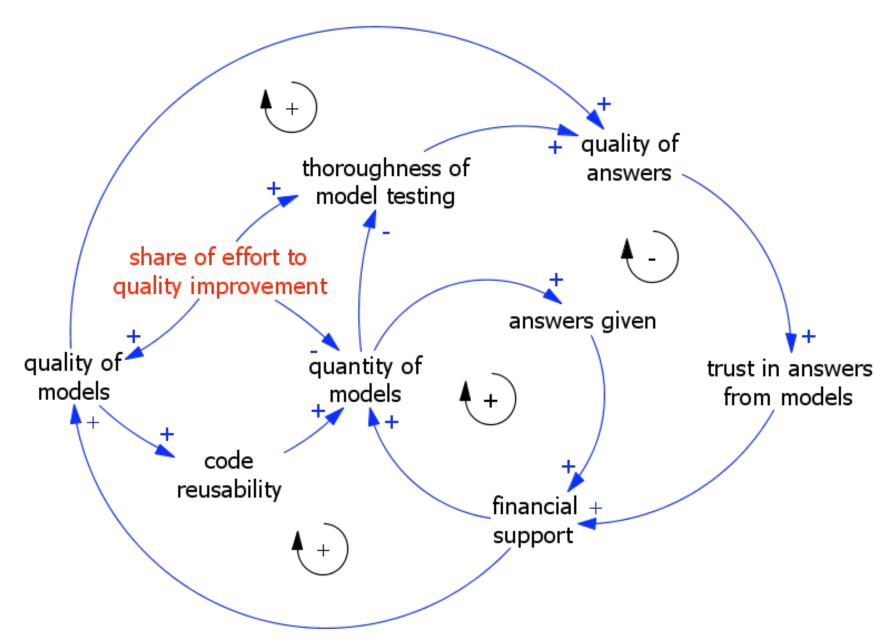


Figure 11 Some Positive Feedback Loops that Create Path-Dependent Behavior

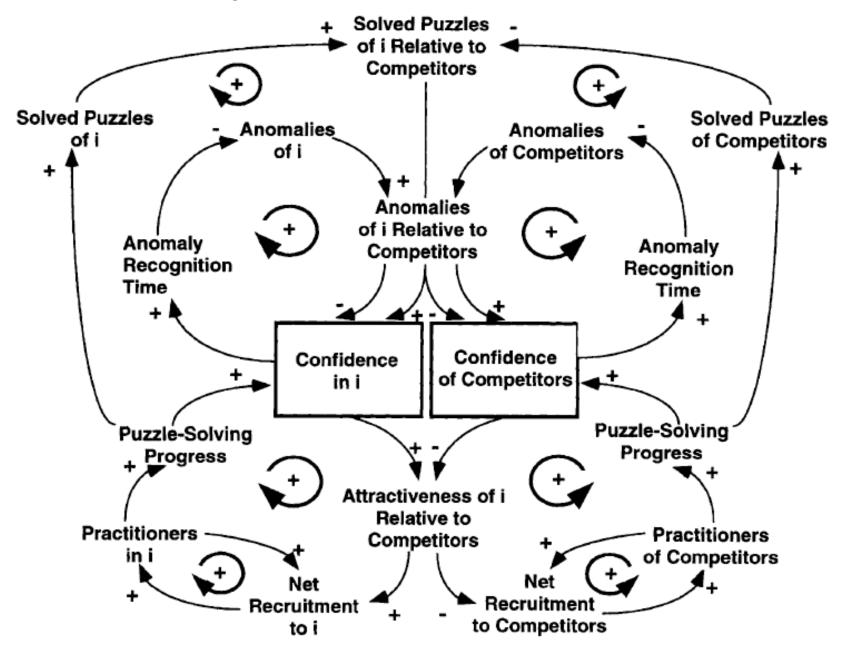


Figure 2 Internal and External Determinants of Confidence in a Paradigm Solved Anomalies Puzzles Puzzle-Solving Progress Change in Total Confidence **Anomalies** Solved Relative to Puzzles Acceptable Receptiveness Level to Change in Confidence Solved Puzzles **Anomalies Relative** Relative to to Competitors Competitors Confidence in the Paradigm

Solved Puzzles of

Competitor Paradigms

Anomalies of

Competitor

**Paradigms** 

### Program Areas

- CAS
- Tools model characterization, specification, formalization, federation, reuse, cross-disciplinary discovery
- Communication
- Grid Massive scale computing

## Progress on multiple fronts

	Near Term	Long Term
CAS	New models	Modeling platform?
Tools	Adopt existing tools (e. g., version control) Promote standards	New types of languages
Communication	Disseminate existing models	New tools for dissemination of results Build ties to other disciplines
Grid	?	?

#### Stakeholders

