

Learning in Complex Environments: Situating Data Science in the Process

Chris Diehl
November 7, 2014







Pentago
South Park



Persian poetry

mixed networks

secular/expatriate

Khatami

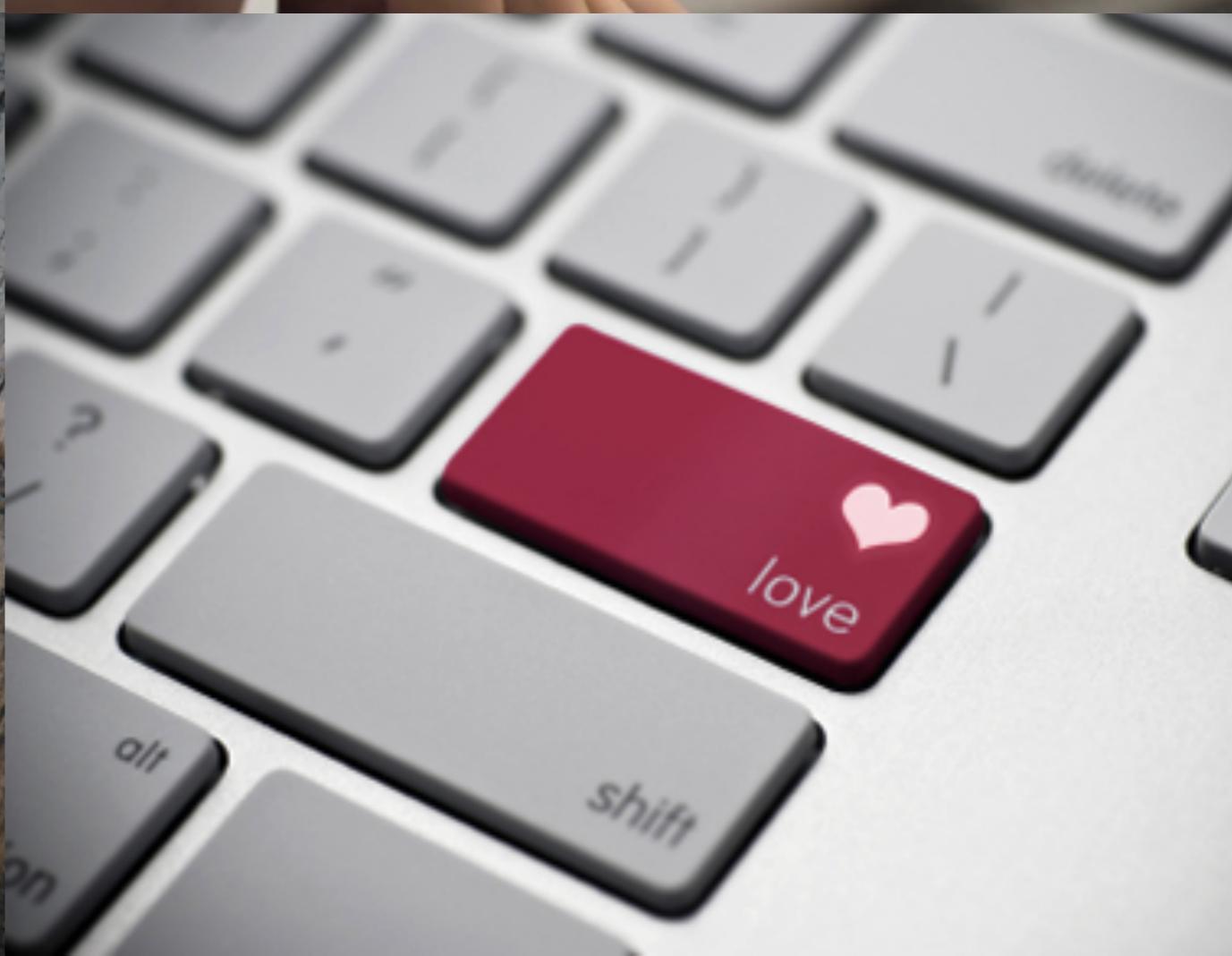
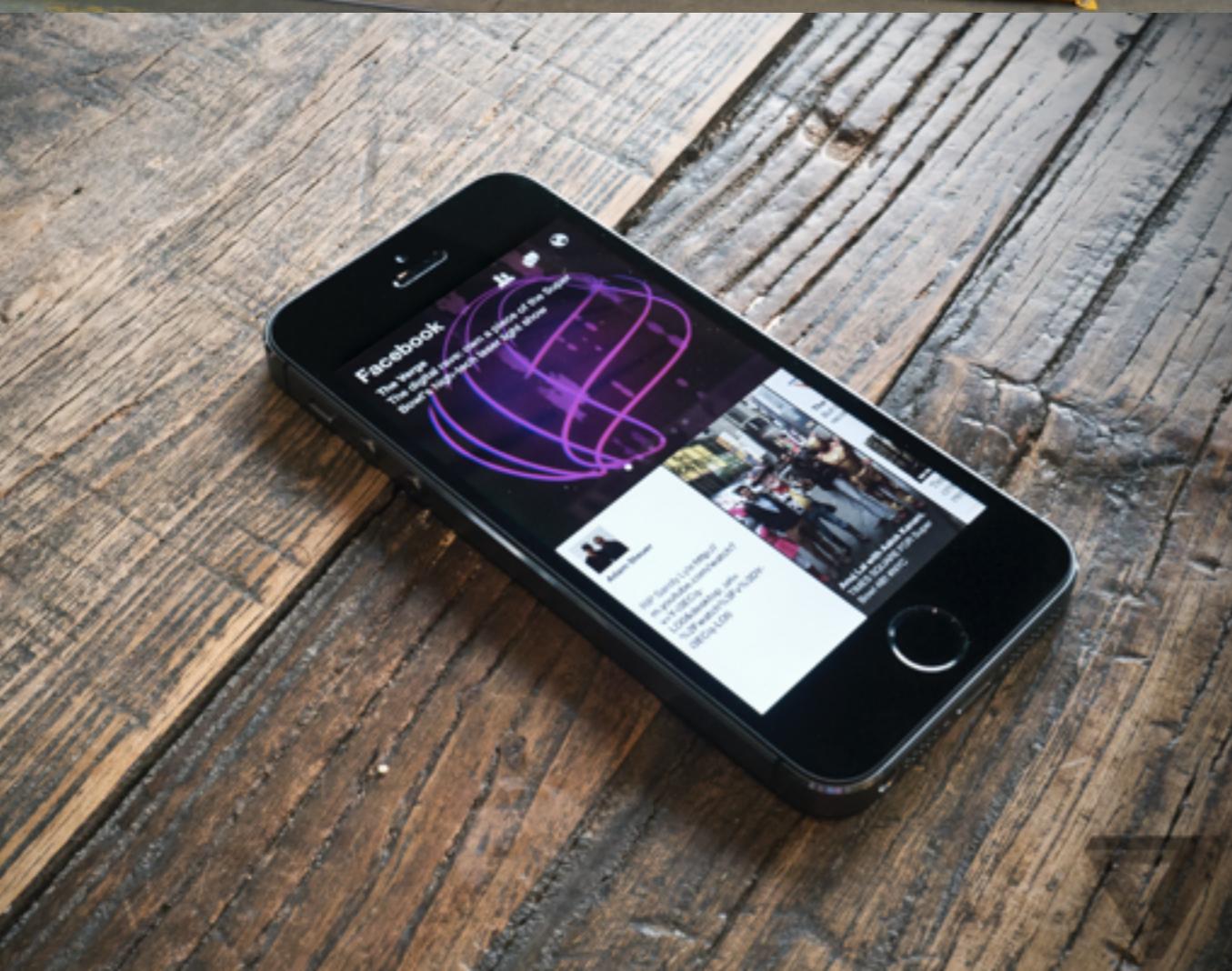
reformist politics

Ahmadinejad

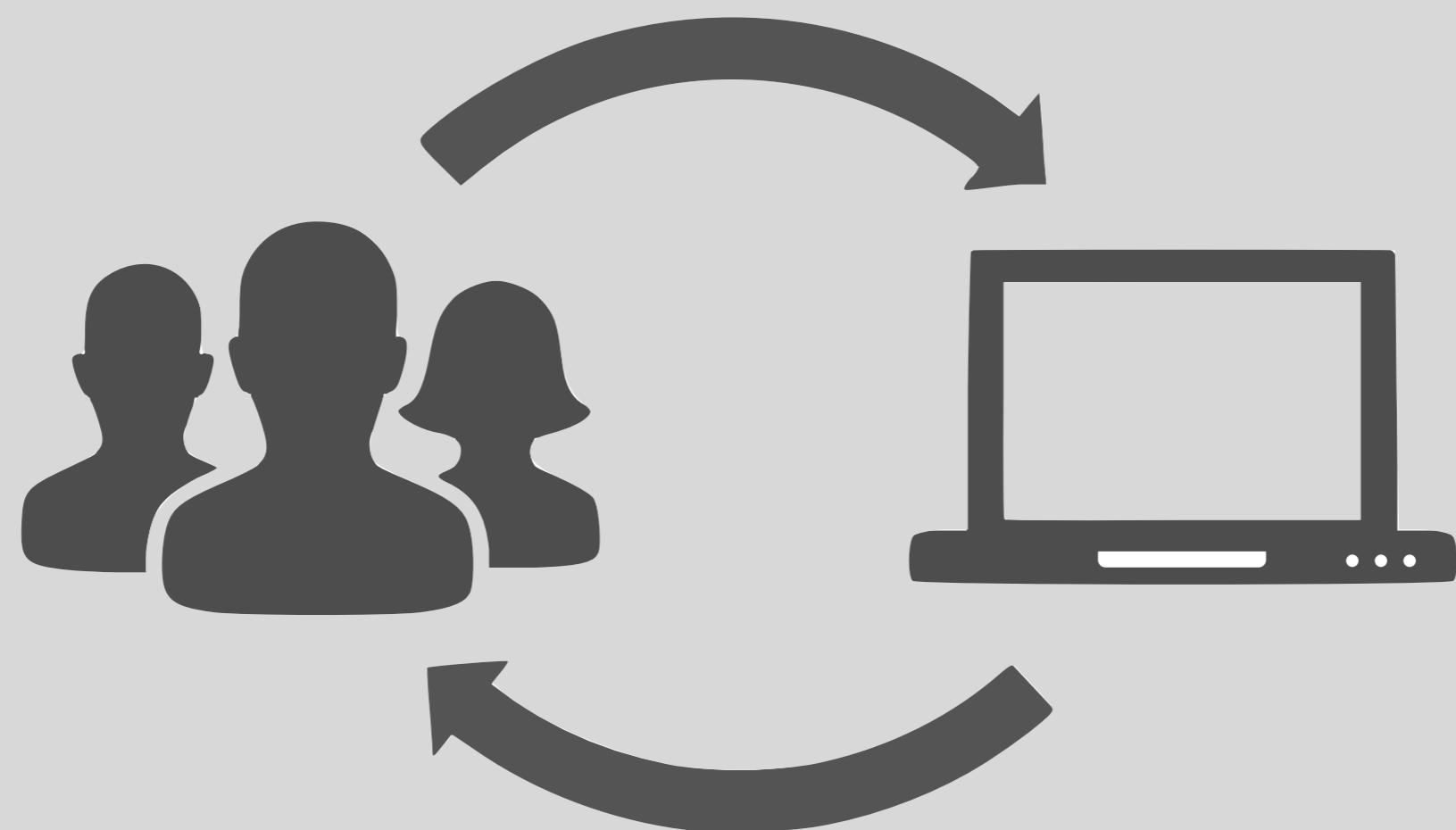
"Twelver"

religious youth

conservative politics







Expect the Unexpected

“We're blind to our blindness. We have very little idea of how little we know. We're not designed to know how little we know.”

Daniel Kahneman







The Limits of Prediction

Cascading Uncertainty

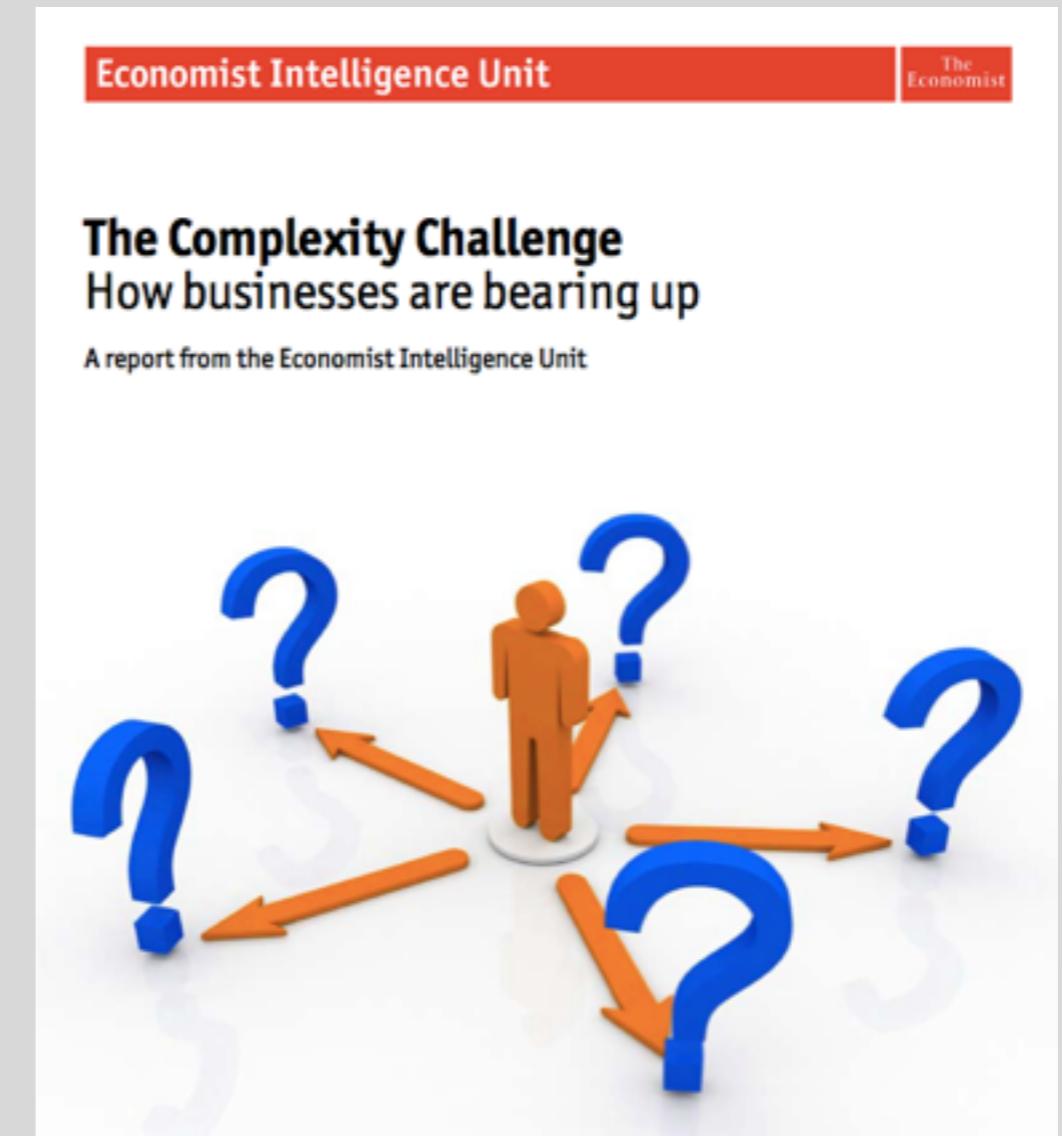
Limited Observability

Cognitive Bias

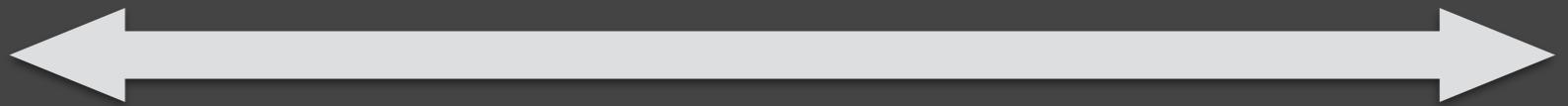


Complexity on the Rise

*Causal Ambiguity
Compressed Decision Cycles
Increasing Risk Exposure*



Mild



Wild

Stability

Surprise

Average

Extreme

Prediction

Adaptation

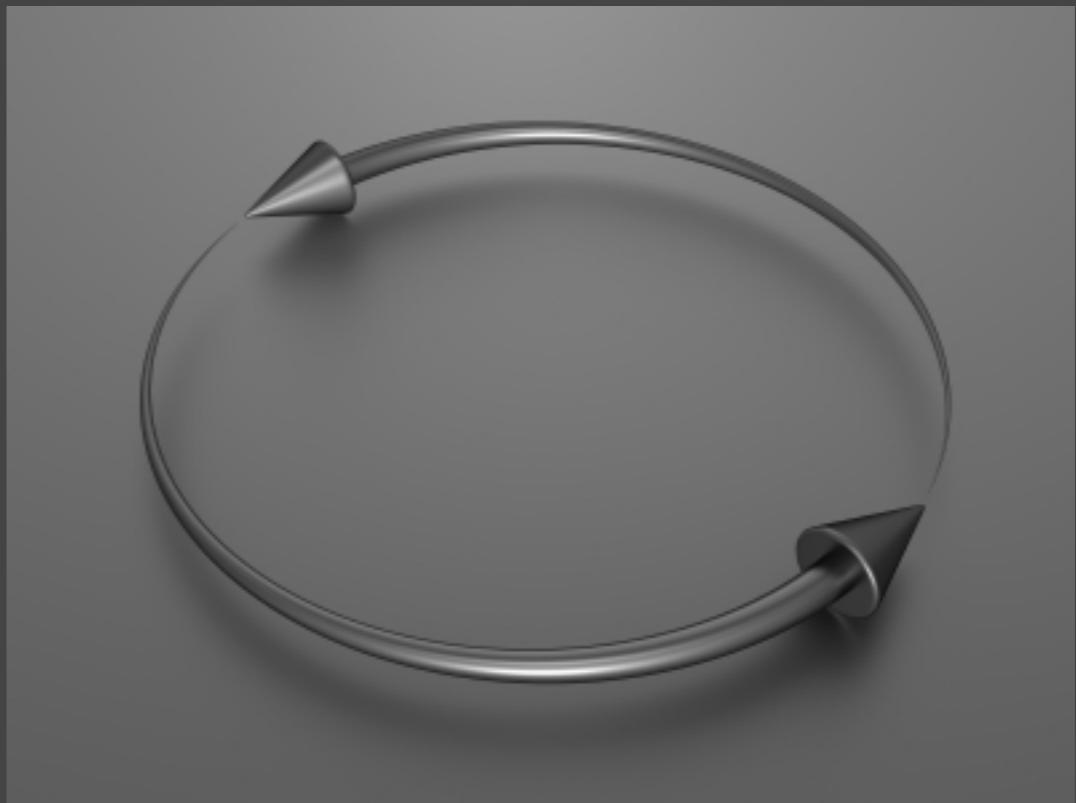


Beware

Understand the Now



Observe
Orient
Decide
Act





facebook

December 2010



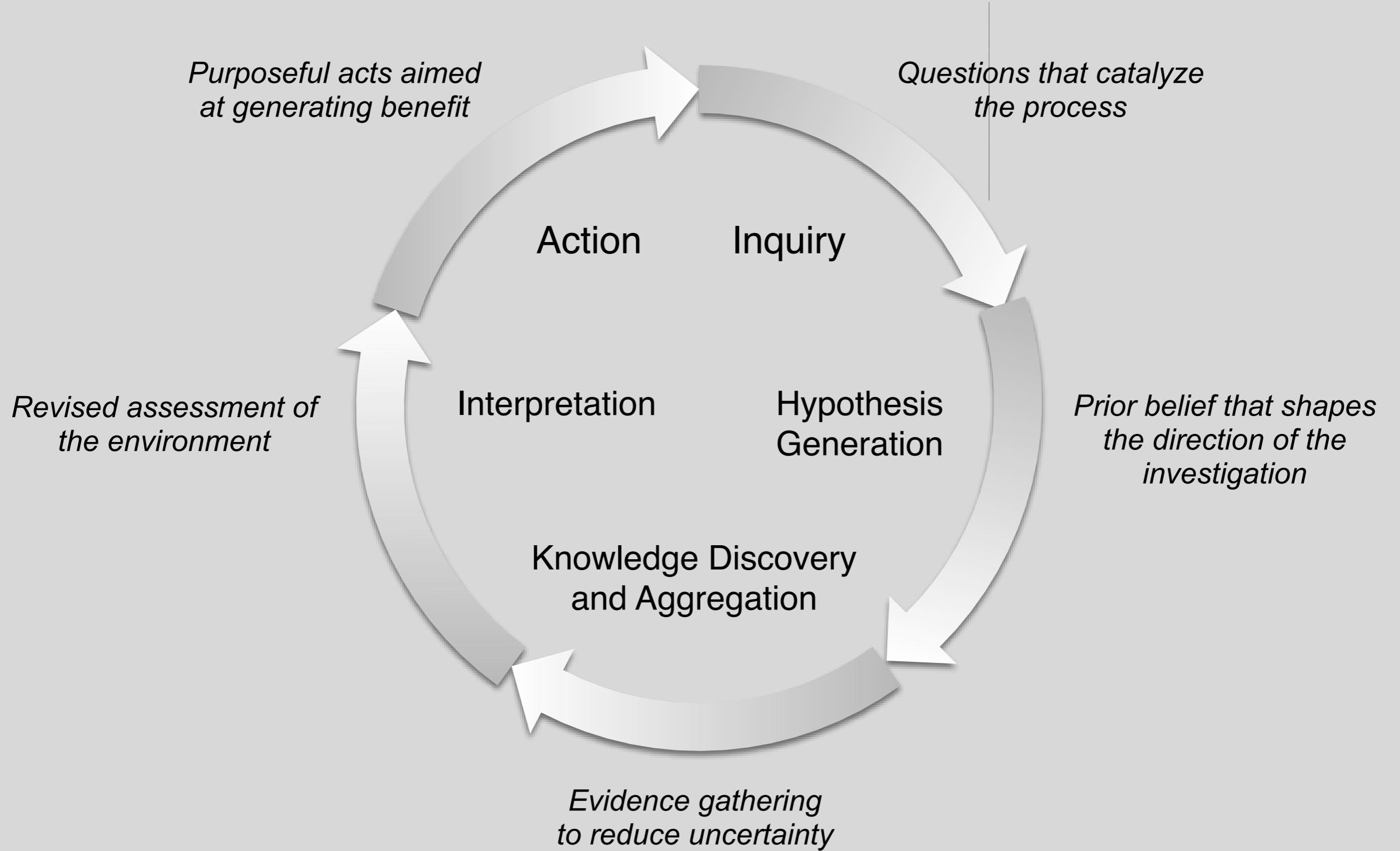
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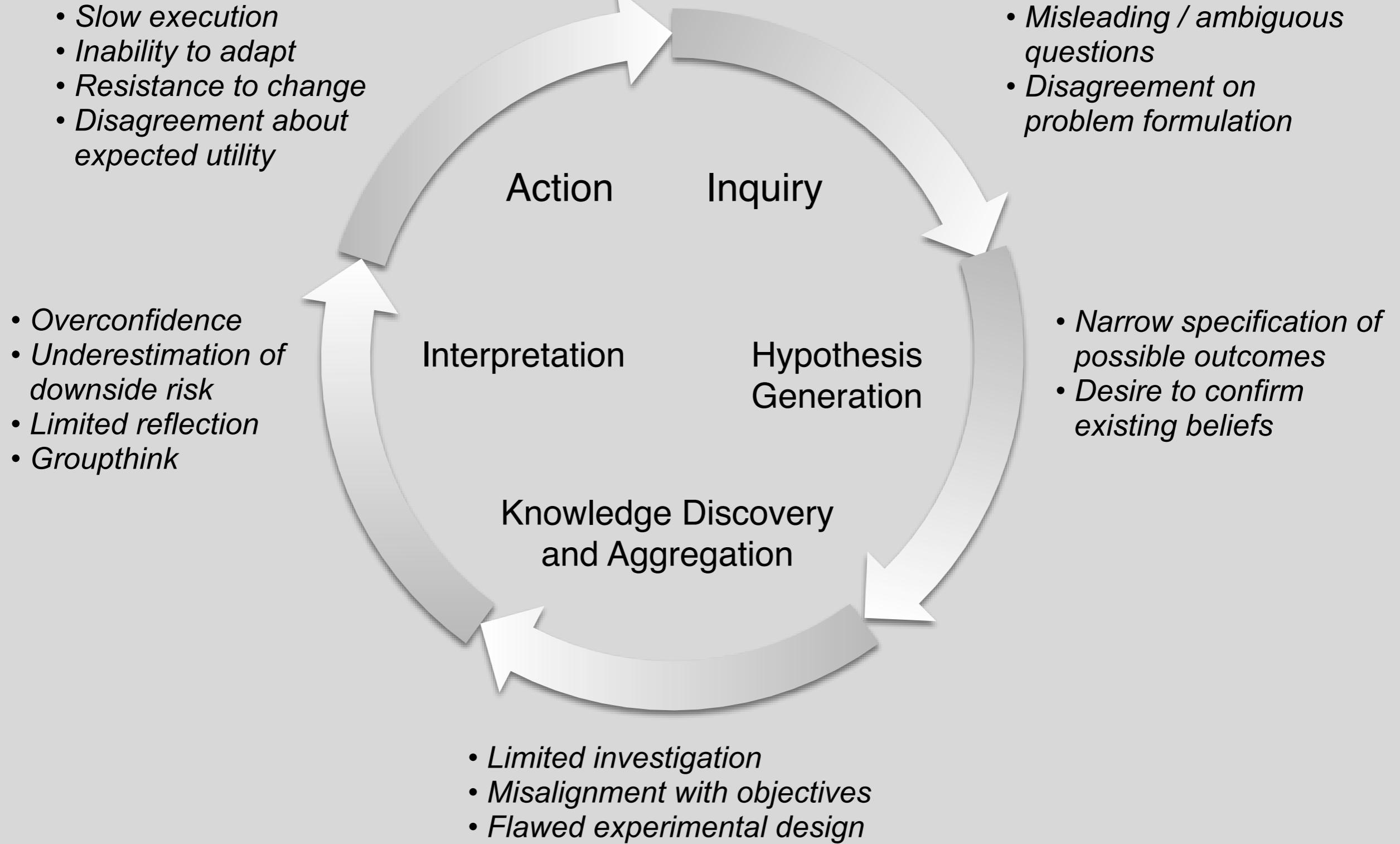


The Old Way: Planning as Prediction

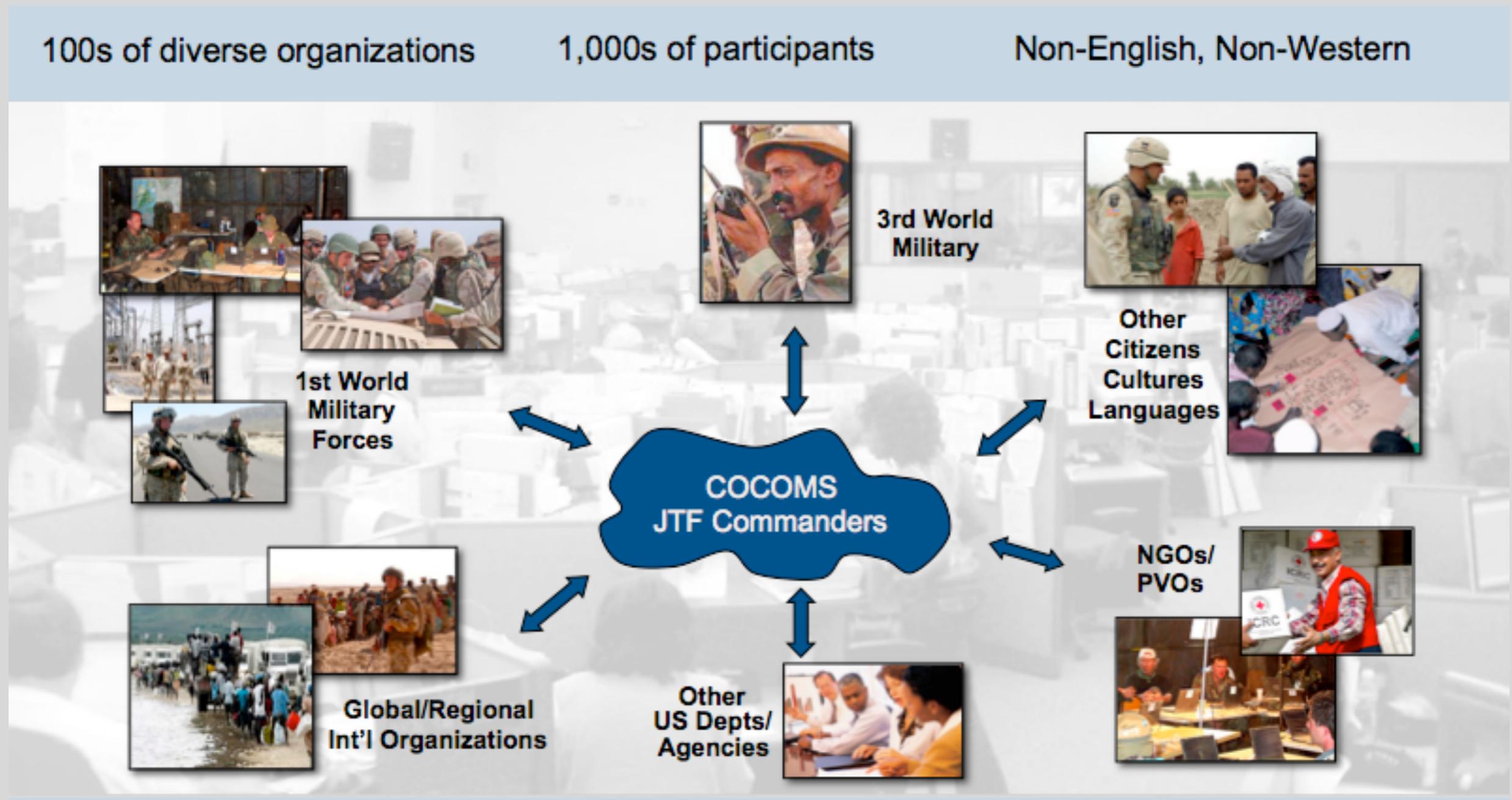
The New Way: Planning as Knowledge Aggregation

Develop Shared Vision





“Wicked Problems”



Dilemmas in a General Theory of Planning*

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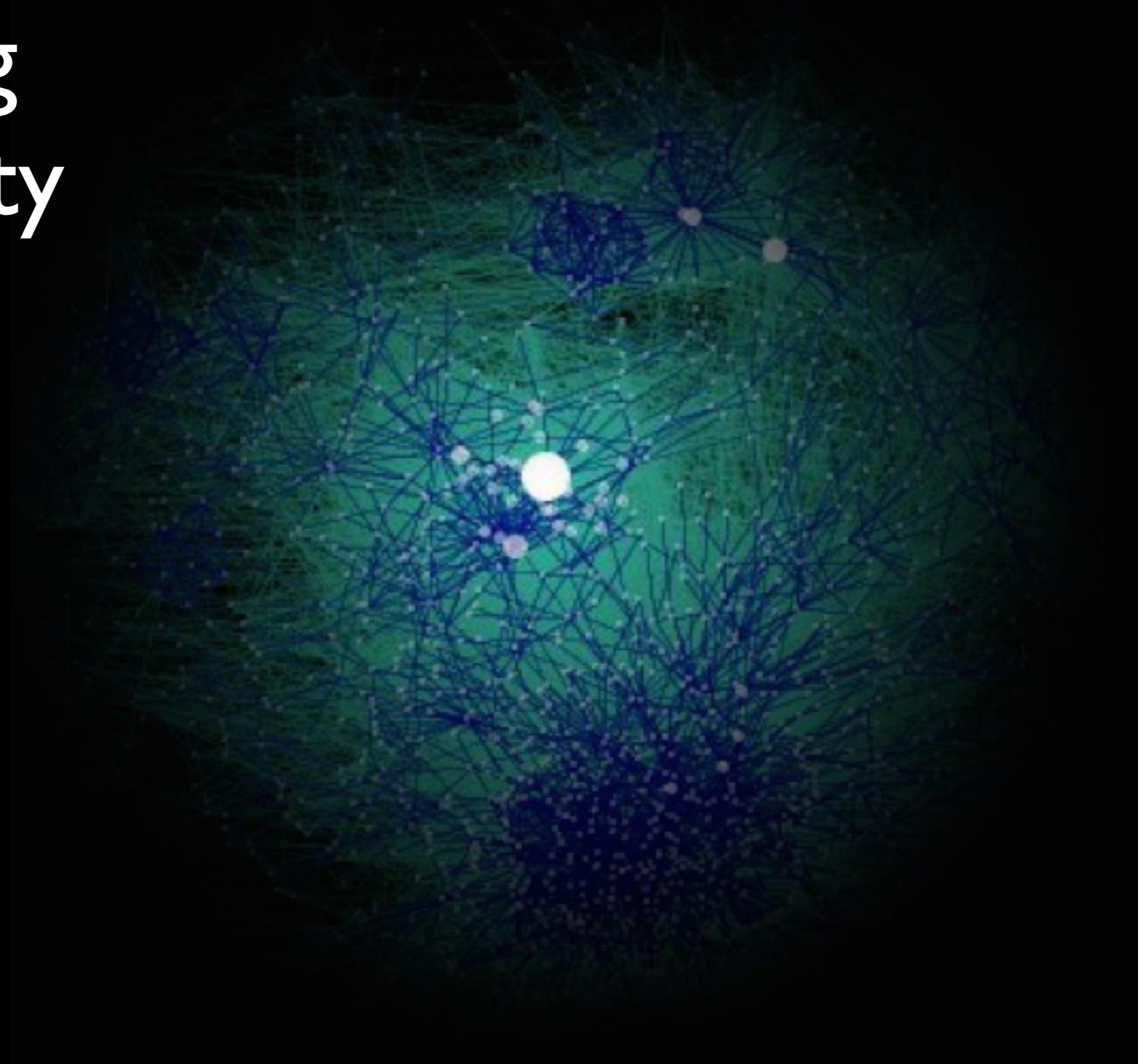
ABSTRACT

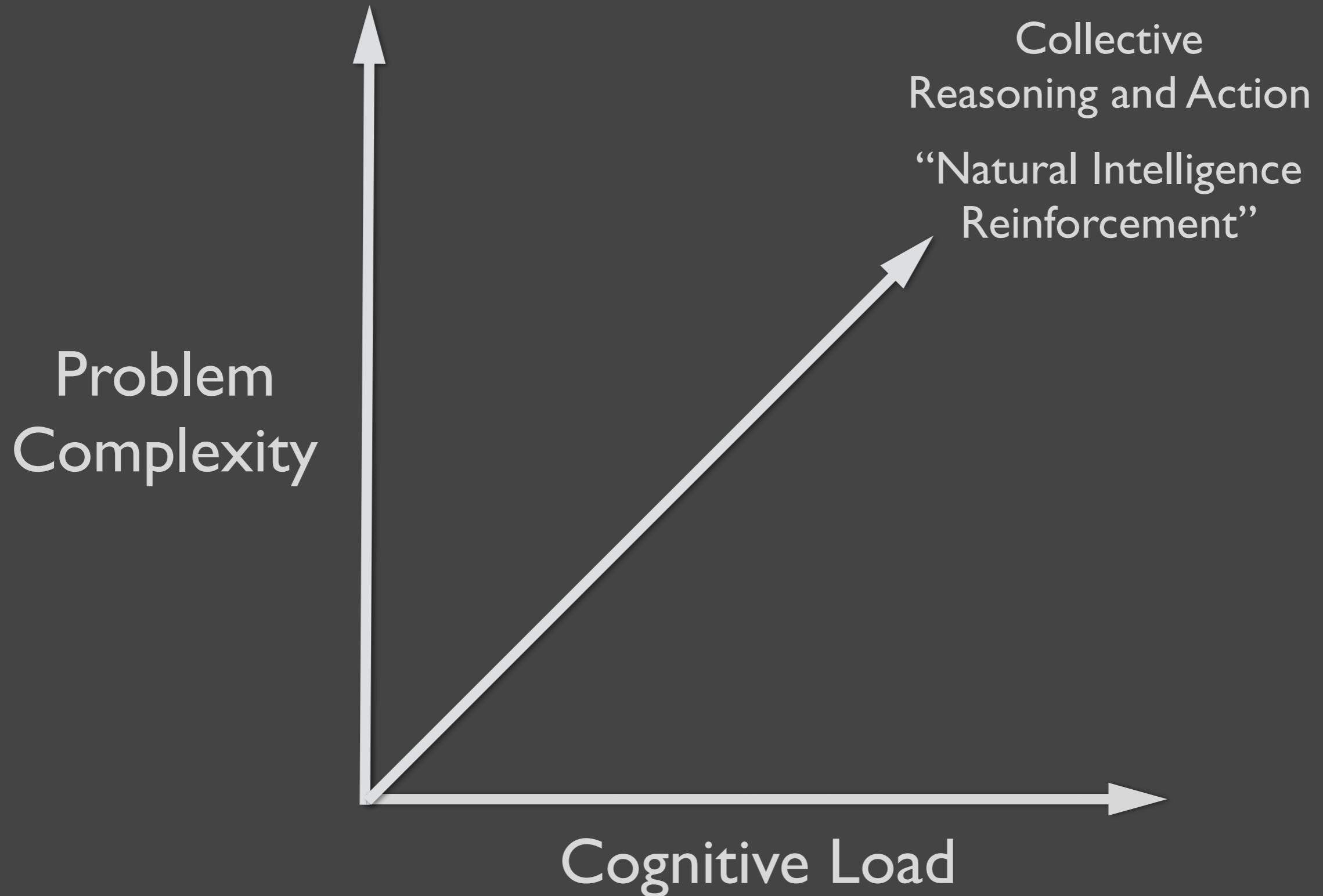
The search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems. They are “wicked” problems, whereas science has developed to deal with “tame” problems. Policy problems cannot be definitively described. Moreover, in a pluralistic society there is nothing like the undisputable public good; there is no objective definition of equity; policies that respond to social problems cannot be meaningfully correct or false; and it makes no sense to talk about “optimal solutions” to social problems unless severe qualifications are imposed first. Even worse, there are no “solutions” in the sense of definitive and objective answers.

George Bernard Shaw diagnosed the case several years ago; in more recent times popular protest may have already become a social movement. Shaw averred that “every profession is a conspiracy against the laity.” The contemporary publics are responding as though they have made the same discovery.

Few of the modern professionals seem to be immune from the popular attack—whether they be social workers, educators, housers, public health officials, policemen, city planners, highway engineers or physicians. Our restive clients have been telling us that they don’t like the educational programs that schoolmen have been offering, the redevelopment projects urban renewal agencies have been proposing, the law-enforcement styles of the police, the administrative behavior of the welfare agencies, the locations of the highways, and so on. In the courts, the streets, and the political

Framing Ambiguity





Design



Goals
Actions

Data
Science



State

Thank you!

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