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ON SYSTEMS COMPLEXITY AND EXPERIMENT VALIDITY

HOW VALID ARE OUR EXPERIMENTS?

- ✘ Methodological consequences of complexity
- ✘ Are we taking unaware risks?
- ✘ Qualitative uncertainty about qualitatively new phenomena
- ✘ Cannot be met by predesigned measures
- ✘ A new meaning of validity?
- ✘ A culture of objectivity may feed overconfidence

GENERAL HIERARCHY OF SYSTEMS

- × 1. Static frameworks
- × 2. Dynamic systems with predetermined motions
- × 3. Closed-loop control or cybernetic systems
- × 4. Homeostatic systems like biological cells
- × 5. The living plant
- × 6. The animal
- × 7. Man
- × 8. Human organizations
- × 9. Transcendental system

COMPLEX C2

- × 1. Organization chart
- × 2. Flow-charts of processes
- × 3. C2 systems
- × 4. Simple, non-reflective, open-ended adaptation
- × 5. Complex, non-reflective, open-ended adaptation
- × 6. Responsiveness to physical, social needs
- × 7. "Theory of mind" – thinking about other's thoughts
- × 8. Collective, mindful and emergent adaptation
- × 9. ... and its ontological/metaphysical aspects ...

ORGANIZATION

- ✘ Complexity reduction
- ✘ Specialization and division of labor
- ✘ Predictability of action for the sake of coordination
- ✘ Natural system turned into a rational system

ORGANIZING FOR INCREASED COMPLEXITY

- ✘ Agile C2
- ✘ Agile organizations
- ✘ Distributed
- ✘ Adaptive: re-active/pro-active
 - + Sensemaking
 - + Meaningful action
 - + Meaningful interaction
 - + Intentional action
- ✘ Interactive complexity

WHAT ABOUT VALIDITY?

- ✘ Validation and justification are social phenomena
- ✘ Statistics – probabilities
- ✘ Stochastic uncertainty vs. intentional uncertainty
- ✘ Open-ended, emergent, interactive, intentional
- ✘ Better to know we are guessing than to believe that we know?
- ✘ - Are we taking unaware risks?