If a Telephone Network Needs an Infrastructure, Why Not a Service-Delivery Network?

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Communications, Transportation, TV

- **Networks with infrastructures**
  - Hardware and software
- **Why not service-delivery networks?**
  - And regulation networks?

Analogies within Human Services

- Agents are institutions and individuals within them
- "Hardware" is therefore "soft"
  - Expectations and perceptions
  - Financial and monetary incentives
  - Power and authority and influence
  - Agents' competencies and capacities
  - Others from future research

Architectural Variables

- Formal characteristics: nodes, linkages, point-centrality, holes, subnetworks, edges, multiplexity…

- Non-architectural variables
  - Expectations and perceptions
  - Financial and monetary incentives
  - Power and authority and influence
  - Agents' competencies and capacities

Correlation Without Causation?

- Centralization as a cause?
- What is causality about anyway?
  - "Necessary and sufficient conditions"?
  - Direct and indirect?
  - Spurious?
  - Proxy?
- Centralization as "force multiplier"
  - Architecture interacts with non-architecture
  - Little independent effect?

Process Dynamics

- ## Feedback loops
  - E.g., trust leads to trust

- ## Emergent features. E.g.:
  - Success leads to success, leads to more resources, leads to attack strategies, leads to vulnerability
  - Matching efforts lead to better search strategies and shrinking pool of plausible targets
  - Groupware, collective self-awareness

Integrating Hierarchies and Networks

- "Governance"? Provan and Kenis, 2008
  - Lead agencies
  - Network Administrative Organizations (NAO)
- Incident Command System (ICS)
  - Exotic Newcastle Disease (END), Moynihan, 2006
- "Network" with two tiers: infrastructure has dual potential; context evokes appropriate dynamic
- Semantic issue. "Collaborative" or "Interagency Collaborative Capacity (ICC)"

Summary and Conclusion

- Network conception too simple
- Analogy with communications network: add "infrastructure"
  - Add non- "architecture" variables
  - Add process dynamics
  - Integrate with other collective production arrangements (hierarchies, markets)