

Network
Models
for
Complex
Sociotechnical
Systems

Distribution Networks

M. T. Gastner and M. E. J. Newman:
“Shape and Efficiency in Spatial
Distribution Networks”

- Achieve balance of
 - Total network length
 - Path length to each node
- Simple heuristics are able to achieve near-optimality using only neighborhood information

Organization Networks

- P. S. Dodds, D. J. Watts and C. F. Sabel: "Information Exchange and the Robustness of Organizational Networks"
- In an environment with...
 - A variable rate of information exchange
 - A variable complexity of required information exchange...achieve balance of...
 - Robust to node removal
 - Robust to information congestion
- Answer: "Multiscale Network"

What, if any, is the place for Network Models in ESD?

- Corroborates my intuition, so forget about it
- Analyze how well my network embodies these metrics to find improvements

How should you define requirements?

- Some definitions may influence how mathematical your solution is
- Some definitions may influence whether local information is sufficient

What should the role of human intuition be in ESD?

- People are better than computers at some things
- Computers are better than people at some things

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ESD.83 Doctoral Seminar in Engineering Systems
Fall 2011

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