Enterprise Architecting
Dynamic Evolution of Enterprise-Technical System Architectures

Research Challenge
- Increasing interdependence creates an explosion of complexity inside the value stream.
- Aggregating stakeholder interests into stable yet flexible and adaptable enterprise-technical systems challenges traditional enterprise and system architecting theory, practice and concepts.

Enterprise Architects must understand:
- How large-scale enterprise-technical systems dynamically evolve in response to internal and external action and stimuli.
- How to architect lean enterprises to deliver continuously improving performance in the face of increasing turbulence and uncertainty in the operational ecosystem.

Practitioner Needs
- Practical application of network-centric theory to real world challenges.
- Principles and practices leading to effective balance
  – Short term performance gains vs. long term viability
  – Competing and conflicting stakeholder interests
- Better ex-ante enterprise architecting knowledge to enhance probability of success

Candidate Case Studies
Transformational Architecture/Spiral Development

Legacy Architecture Transformed

Research Product Goals
- Empirical support for emerging theories of the enterprise
- Generalizable principles for enterprise architecting and transformation
- Method for assessing evolutionary dynamics of enterprise-technical architectures so that management attention may be better applied
- Ph.D. Thesis

Extending Theory, Connecting to Practice

Discover patterns in evolution of the enterprise-technical system

Applying network theory to characterize enterprise-system architectures

• Framework and case studies under development

Ref: Dodds, Watts, Sable, PNAS 2003
Applying network theory to characterize enterprise-system architectures