

# 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.

### Practitioner Needs

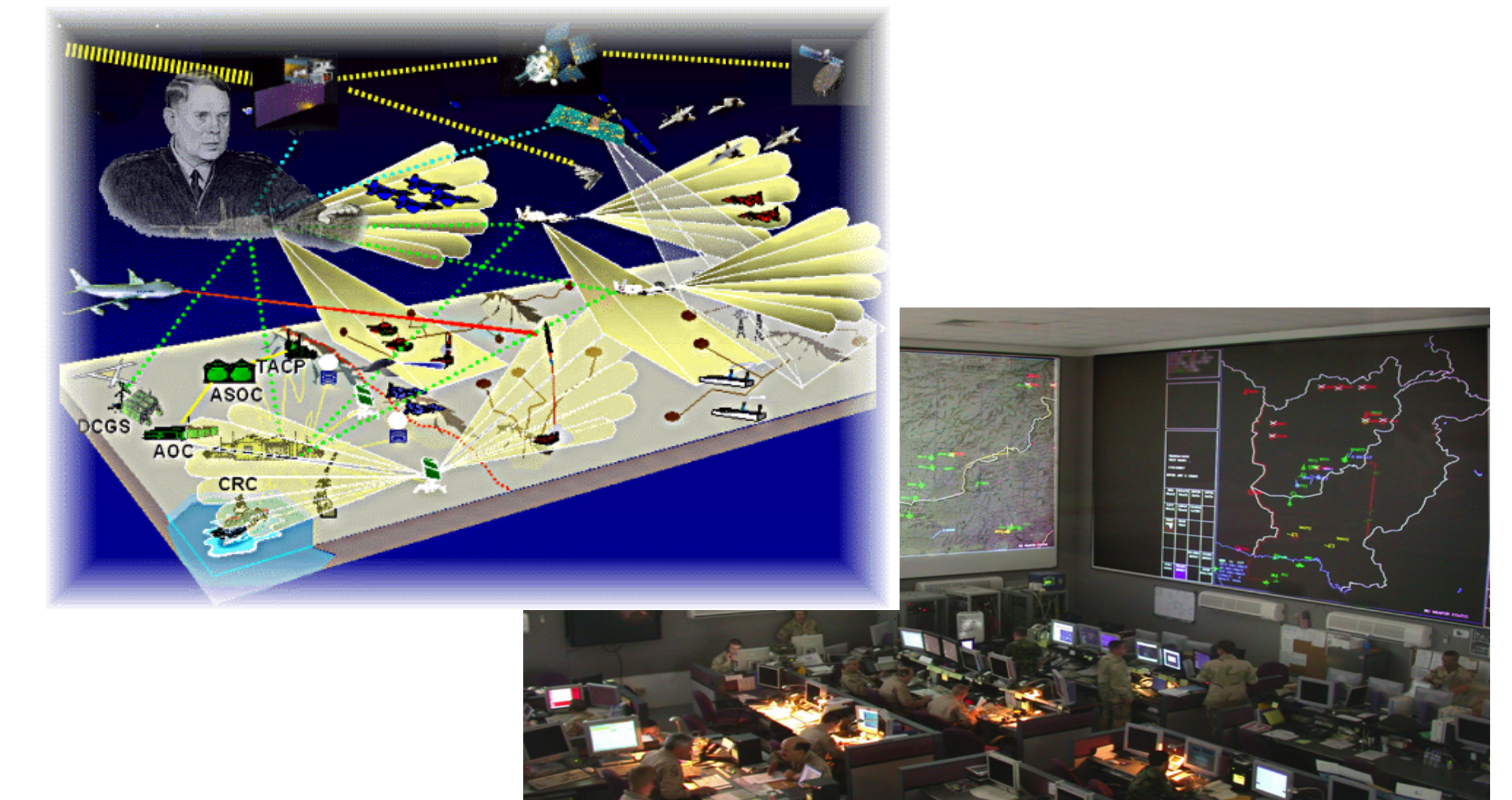
- **Practical application** of network-centric theory to real world challenges.
- Principles and practices leading to **effective balance**
  - Short term performance gains vs. long term viability
  - Competing and conflicting stakeholder interests
- Better **ex-ante** enterprise architecting **knowledge**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

**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.

### Candidate Case Studies

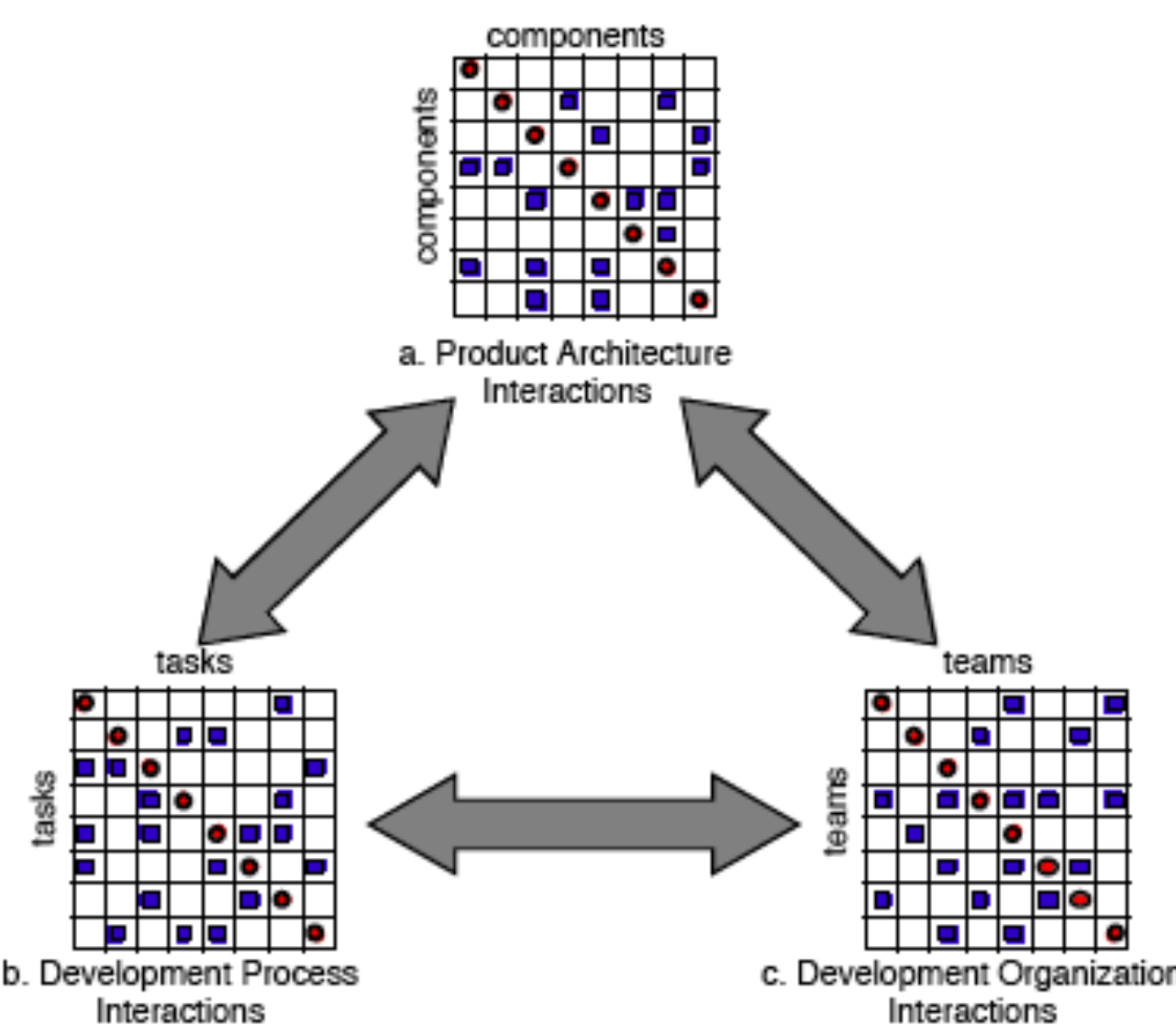
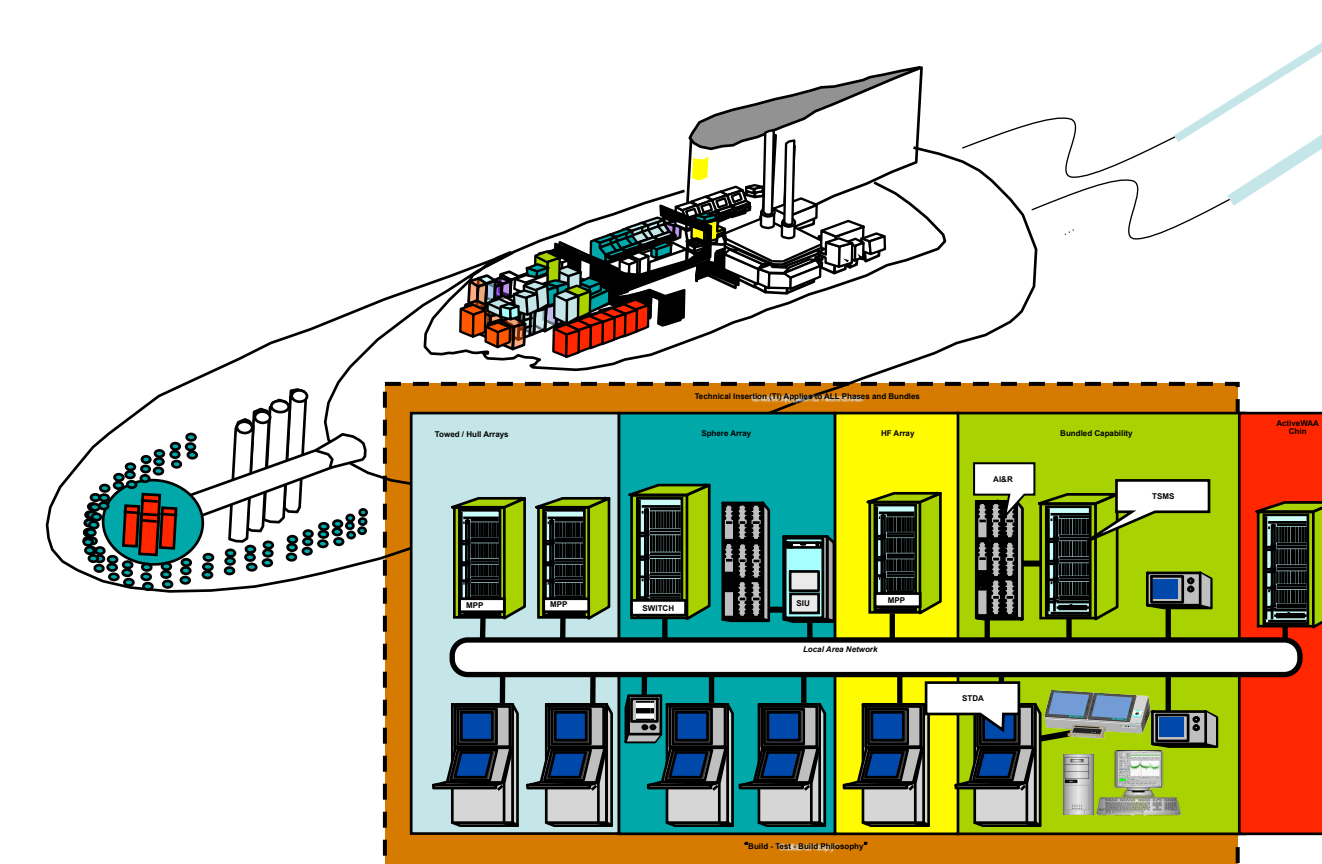
#### Transformational Architecture/ Spiral Development



#### Research Product Goals

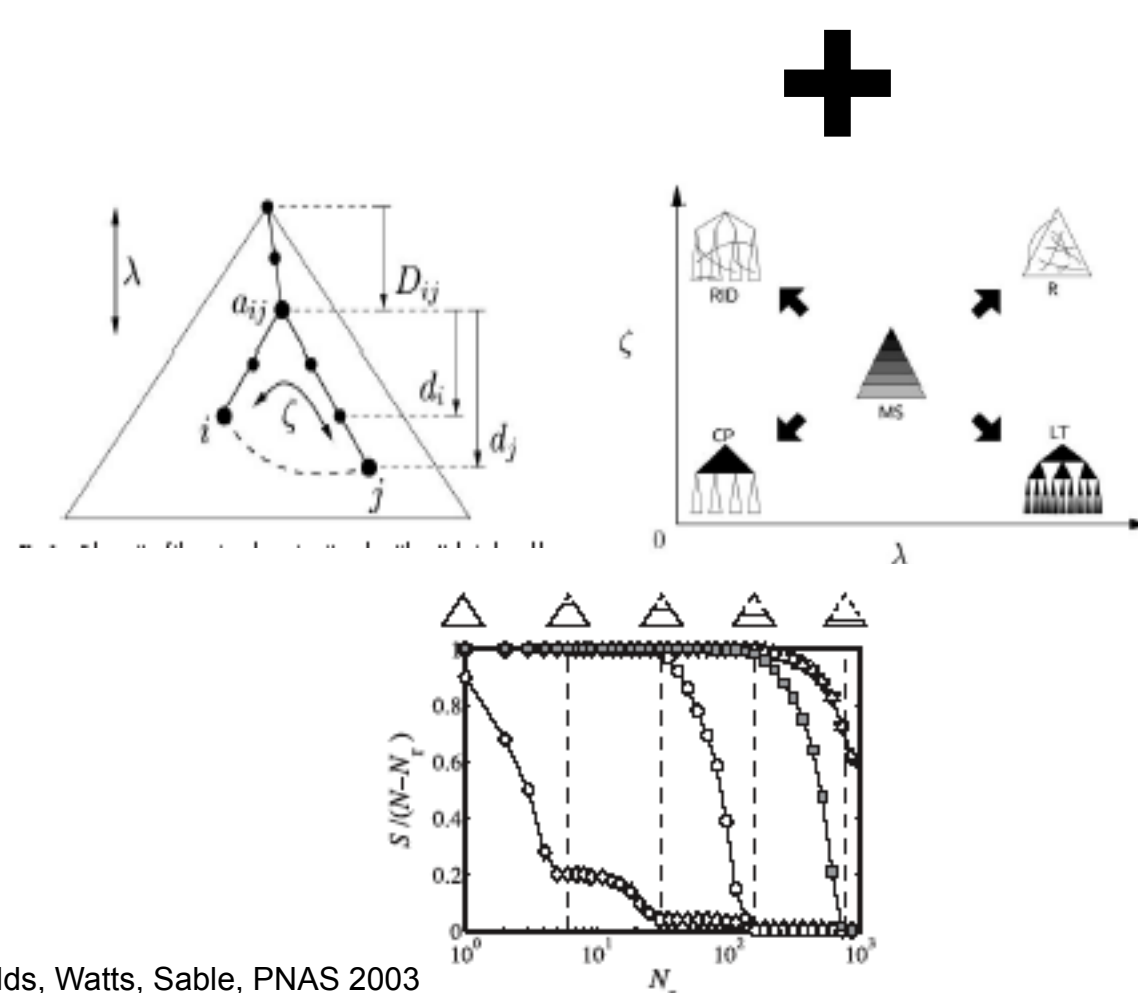
- **Empirical support** for emerging theories of the enterprise
- Generalizable **principles** for enterprise architecting and transformation
- **Method** for assessing evolutionary dynamics of enterprise-technical architectures so that management attention may be better applied
- Ph.D. Thesis

### Legacy Architecture Transformed



Ref: Eppinger, 2003

Discover patterns in evolution of the enterprise-technical system



Ref: Dodds, Watts, Sable, PNAS 2003

Applying network theory to characterize enterprise-system architectures

- **Framework and case studies under development**

**Extending Theory, Connecting to Practice**