

Knowledge Integration Research

Multi-Platform Thinking: Integrating Knowledge in the Lean Enterprise



Background:

Knowledge is the *key strategic resource* in sustaining competitive advantage

Reduced defense budgets → increasing need to leverage knowledge resources in defense aerospace industry

Knowledge integration is the basis for evolving dynamic enterprise capabilities

Knowledge integration = {capture, combine, create, share, store, accumulate, retrieve and reuse} knowledge from multiple sources in the enterprise



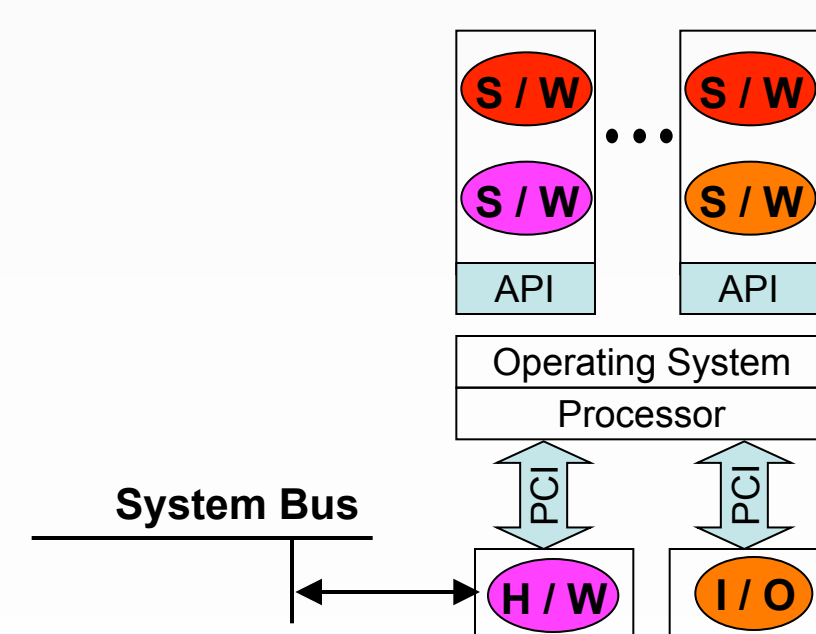
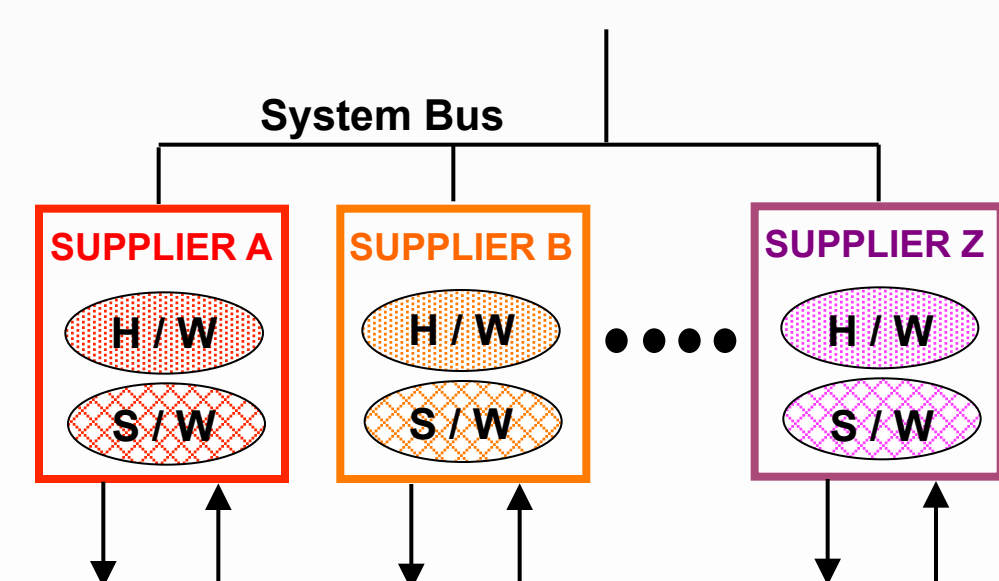
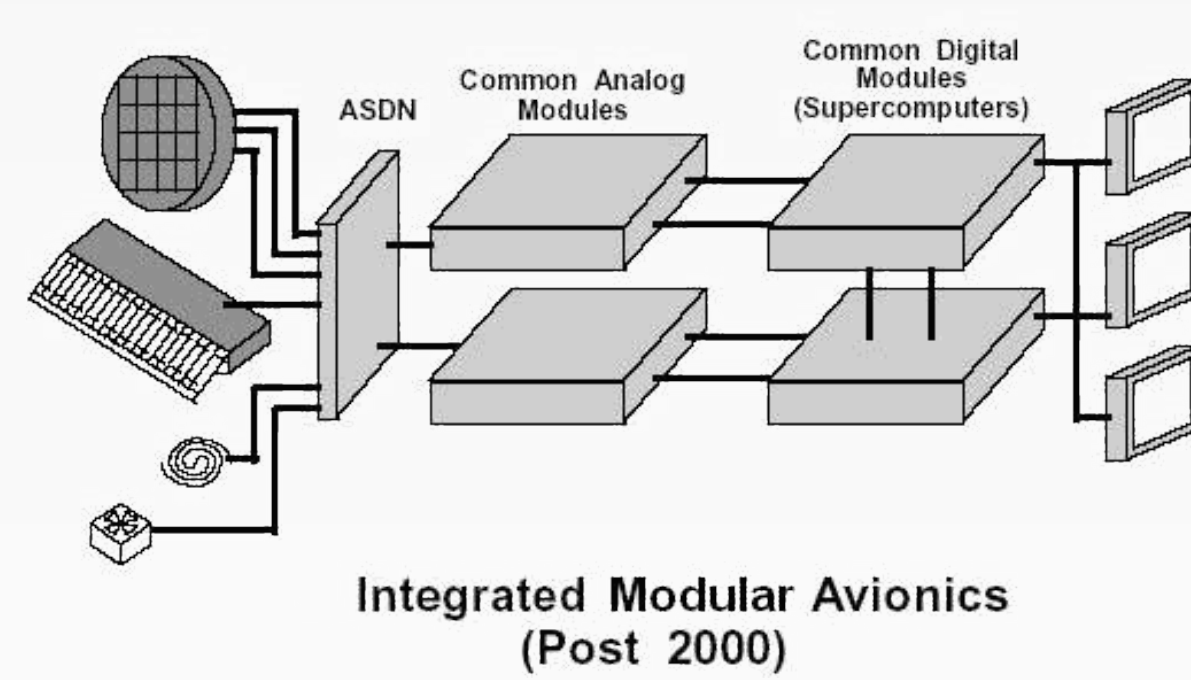
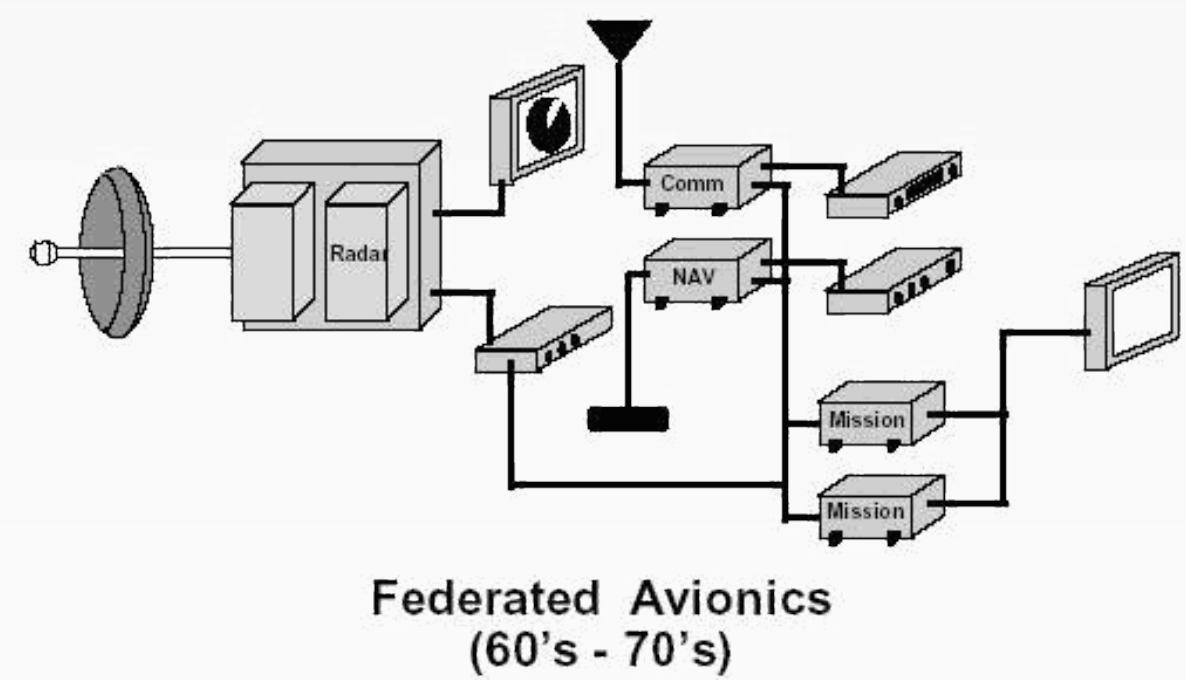
Research Focus – Military Avionics:

Avionics systems > 50% total military aircraft flyaway costs:

- Knowledge integration in the development of military avionics systems is key to affordability

Modularization increasing in modern avionics systems:

- More knowledge about avionics systems going to supplier base → need for early supplier integration capability
- More opportunities to integrate knowledge about component modules and system architectures from other aircraft platforms → need multi-project management capability



Key Research Questions:

How do defense aerospace enterprises integrate knowledge to evolve key dynamic enterprise capabilities for development of avionics systems?

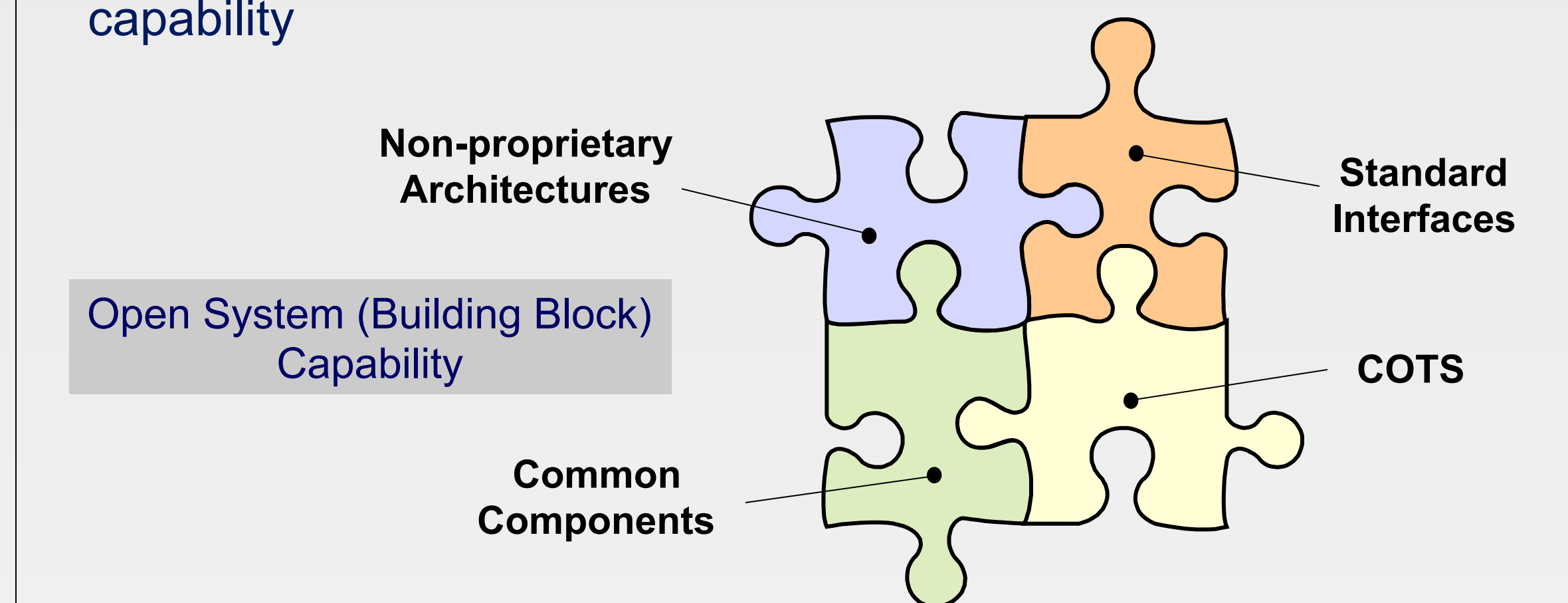
- What are the key dynamic enterprise capabilities for development of affordable and interoperable avionics systems?
- What are the types & sources of knowledge about avionics systems that are necessary to evolve these capabilities?
- What are the mechanisms for knowledge integration in this context?
- What is the link between product system architecture and enterprise knowledge integration?
- What are the technology, management and policy issues involved in the deployment of dynamic enterprise capabilities across multiple platforms?

Expected Results:

Technology Implications:

Implications for the design of fourth generation avionics systems:

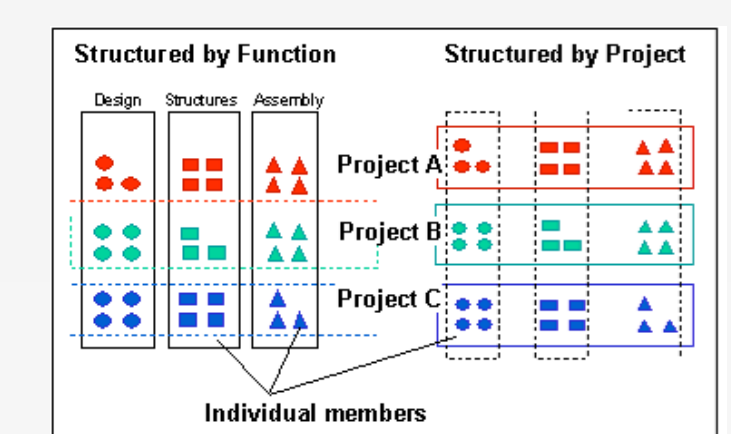
- Identifying knowledge integration mechanisms that will promote modular and architectural innovation and evolve an “open system” capability



Organizational and Management Implications:

Identification of effective strategies for knowledge management in large scale defense aerospace enterprises:

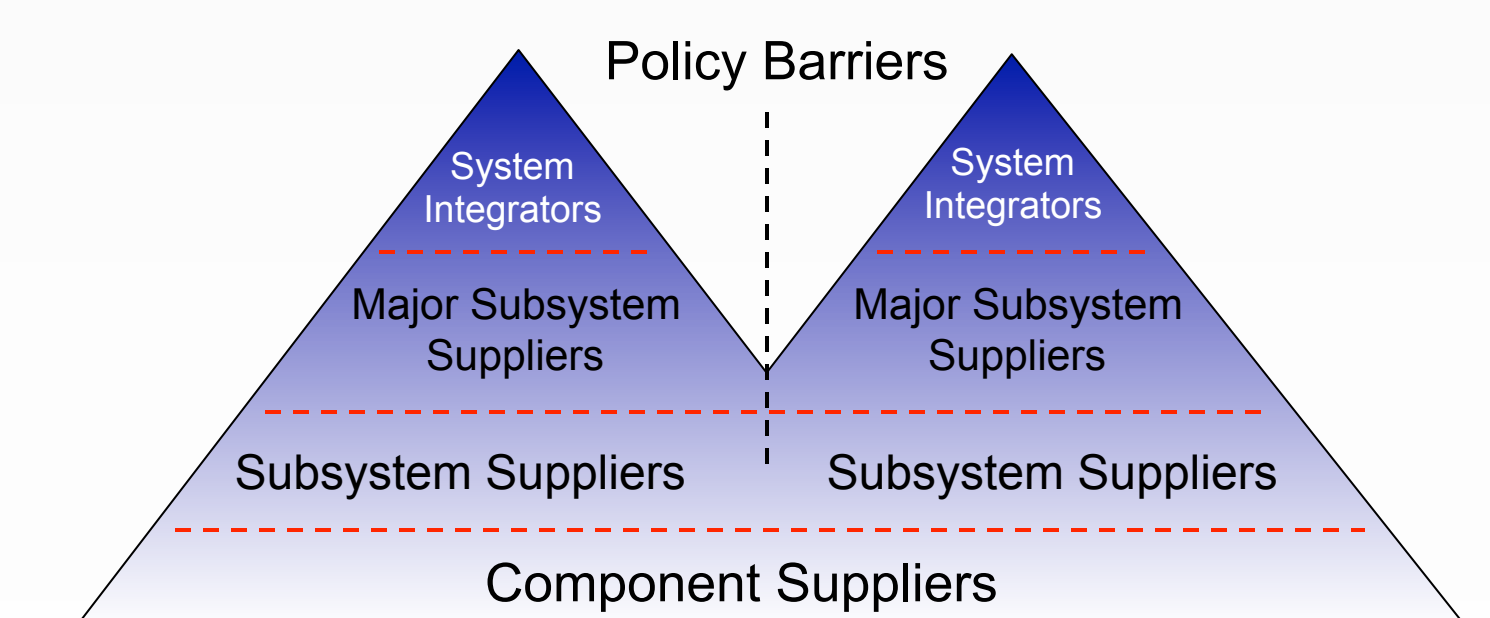
- Implications for “multi-project management” across internal program boundaries
- Implications for “early supplier integration” within and across organizational boundaries



Policy implications:

Identification of public policy enablers/barriers facilitating or impeding knowledge integration in the defense aerospace context:

- Implications of program acquisition reform policies on the adoption of an “open system approach”
- Implications of ITAR policy barriers for international supplier integration



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