Lightweight Governance for Enterprise or System-of-Systems Architectures

### **GSAW 2021**

Brenda Henckell, Lockheed Martin



### Lightweight Governance for Enterprise or System-of-Systems Architectures



### **Brenda Henckell**

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### **Experience:**

Lockheed Martin DX/EBS: Enterprise Architecture, IT Architecture, Mobility Lockheed Martin RMS: Systems Integration & Test Engineering

### **Domains:**

- Enterprise Architecture
- Systems Engineering
- Agile

## **Architecture Challenges**



# Lightweight Architecture Approach



# Agility

- Architecture Review
- Validation & Verification



### **Enables Digital Transformation**

 Uses the current state as a basis for transformation



### Governance

Continuous involvement as architectures mature over time and the decision space evolves



# Adoption

• Easily understood path to alignment

### Components of Lightweight Architecture Approach









Guiding Materials

### Governance Board

Communication

Alignment Tool

### Components of Lightweight Architecture Approach





# Guiding Materials

# **Guiding Materials**





### **Reference Architectures**

### Standards



### **Design Patterns**

Portfolios



### Guardrails

### **Architecture Maturity & Evolution**













# **Architecture Maturity & Evolution**



### **Communicating Architectures Early**

Provides Teams with something to use in the early stages of development



- Gives peers the opportunity to influence and shape architecture
- Promotes good stewardship of an architecture from inception.

### **Architecture Maturity Indicators**





# Governance

### Architecture Governance Board Responsibilities



# Architecture Governance Board Participation



- Technical Leaders
- Sanctioned by Senior Executives
- Supported by Technical SMEs
- All Architects & Engineers in your organization



# Communication

### **Architecture Modeling Considerations**

- Efficacy and efficiency of formal modeling languages and frameworks for specific application
- Audience familiarity with modeling languages
- Widely consumable by <u>all</u> interested parties





S Y S T E M S M O D E L I N G L A N G U A G E TM

The TOGAF® Standard — Version 9.2

### Accessibility

Limited access to information through controls that require manual effort to change.

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### "Principle of Least Effort"

People are less likely to seek information if it makes their job harder, even if it benefits the organization they work for. (Moreville, 55)



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Too many clicks Too many hops Information hard to find

> Loss of interest Loss of hope Loss of time

Quick Links Robust Search Bar

Organization schema that is extendable, flexible and easy to maintain



### Excessive Protection - "Need to Know"

- Challenge traditional restrictions
- Reconsider openness for the sake of transformation





# Alignment & Adoption

# **Alignment & Adoption**

- More challenging as system-of systems scope grows
- Transition from as-is to to-be states are a journey
- Teams need a map

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# **Alignment & Adoption**

- Alignment is a journey with many steps
- Steps may be sequential or independent
- Milestone-oriented adoption criteria

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### **Adoption Model**



# **Adoption Model**

### **Potential Challenges Requiring a Business Decision**

	Budget & Staffing				Comprehensive
Competing Priorities				Advanced	Complete adoption across
🛓 Buy-in &			Consistent adoption of the	all aspects of the reference architecture.	
	Confidence		Conforming	reference architecture for all new programs/projects to which the reference architecture is directly applicable.	
		Converging	General adoption of the reference architecture for		
	<ul> <li>Alignment has begun in some areas and a path towards alignment in the remaining areas has been</li> </ul>	most new programs/projects to which the reference architecture is directly applicable			
	<ul> <li>Preliminary adoption of the most basic elements of the reference architecture.</li> </ul>	identified and planned as evidenced by roadmap.	αρριταυτε.		



# Execution Rhythm

### **Execution Rhythm**



### **Execution Rhythm**



➢ Respond to change with more agility

Agile mindset baked into process

➢Quarterly rhythm then adjust up/down

depending on your rate of change

# Lockheed Martin Enterprise Reference Architecture



- Business, Data, Application & Technology Domains
- > Spanning internal enterprise

- Updates reviewed quarterly
- Mature architectures require alignment and tools provided

- Published via content management
- Broadly accessible

### Components of Lightweight Architecture Approach









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**Resources:** 

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- <u>https://www.omgsysml.org</u>
- https://www.uml.org/index.htm
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