Aerospace Industries Association Overview

Gery Mras, Director Lifecycle Management

6 | 05 | 2019

AIA Board of Governors Leadership

William M. Brown
Vice Chairman, Board of Governors, Aerospace Industries Association
Chairman, President and Chief Executive Officer of Harris Corporation

Kelly Ortburg
Vice Chairman, Board of Governors, Aerospace Industries Association
Chairman, President and Chief Executive Officer of

Eric K. Fanning
President & Chief Executive Officer
Aerospace Industries Association

AIA Executive Leadership

Mr. Eric K. Fanning

President and Chief Executive Officer

The Aerospace Industries Association announced that Eric K. Fanning will become its President and Chief Executive Officer, effective January 1, 2018. Mr. Fanning is well known in Washington, D.C., and to AIA member companies for his ability to deliver results at the strategic level. Most recently, Fanning served as the 22nd Secretary of the Army where he provided leadership and oversight of our nation's largest military service, the United States Army. Fanning previously served as Chief of Staff of the Secretary of Defense, Acting Secretary of the Air Force and Under Secretary of the Air Force, and Deputy Under Secretary and Deputy Chief Management Officer of the Navy. He is the only person to have held senior appointments in all three military departments and the Office of the Secretary of Defense.

During his more than 25 years of distinguished government service, Fanning worked on the staff of the House Armed Services Committee, and was a special assistant to the Secretary of Defense and associate director of political affairs at the White House.

What Defines AIA?

Innovation

Aerospace & Defense Investment

Innovation

Innovation

Industry-Government Engagement

Innovation

Innovation

Global Competitiveness

Innovation

Innovation

21st Century Workforce

Innovation

AIA's Strategic Focus

Aerospace & Defense Investment

- Robust, balanced, stable A&D budgets (e.g., repeal/revise BCA)
- Increased research and development by government and industry
- Investment in infrastructure (e.g., funding NextGen)

Industry-Government Engagement

- Strategic awareness
- Institutional structural reform
- Smart regulatory reform/framework
- Facilitating Industry Standards
- Certification Reform
- Cybersecurity
- Sustainment

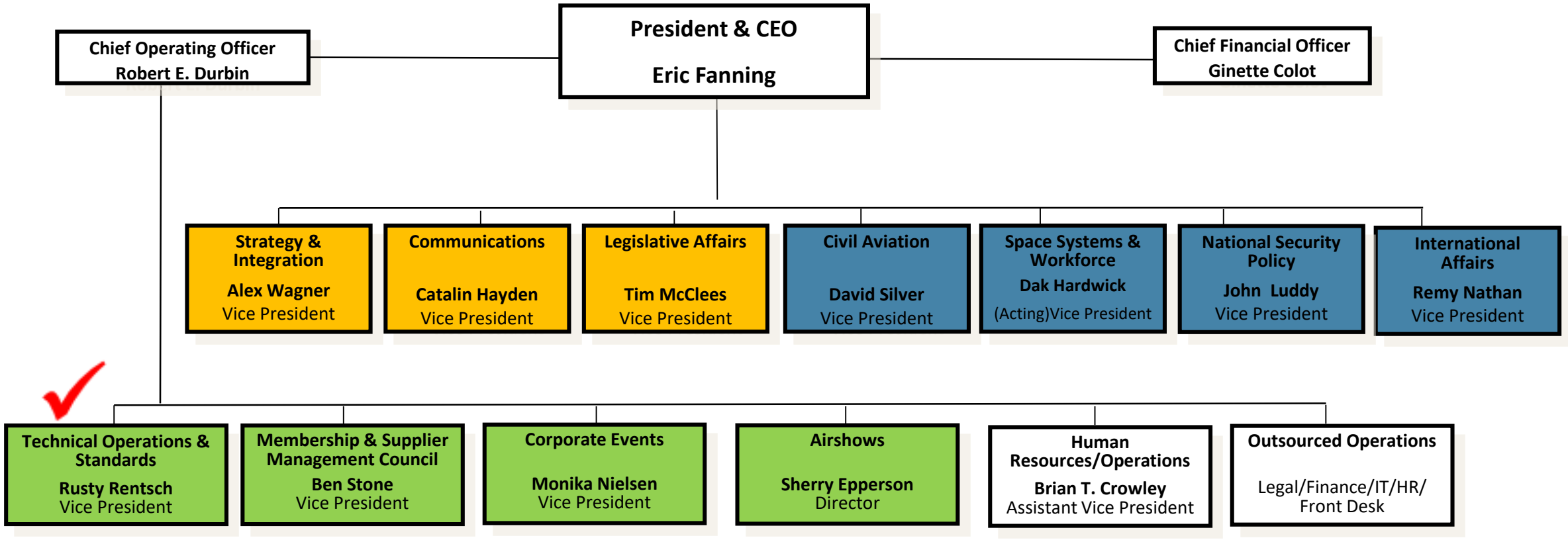
Global Competitiveness

- Conventional Arms Transfer Policy Implementation Plan
- Ex-Im Bank
- Free/fair trade agreements [NAFTA renegotiation, misc. tariffs]
- Commercial space competitiveness
- Global supply chain access

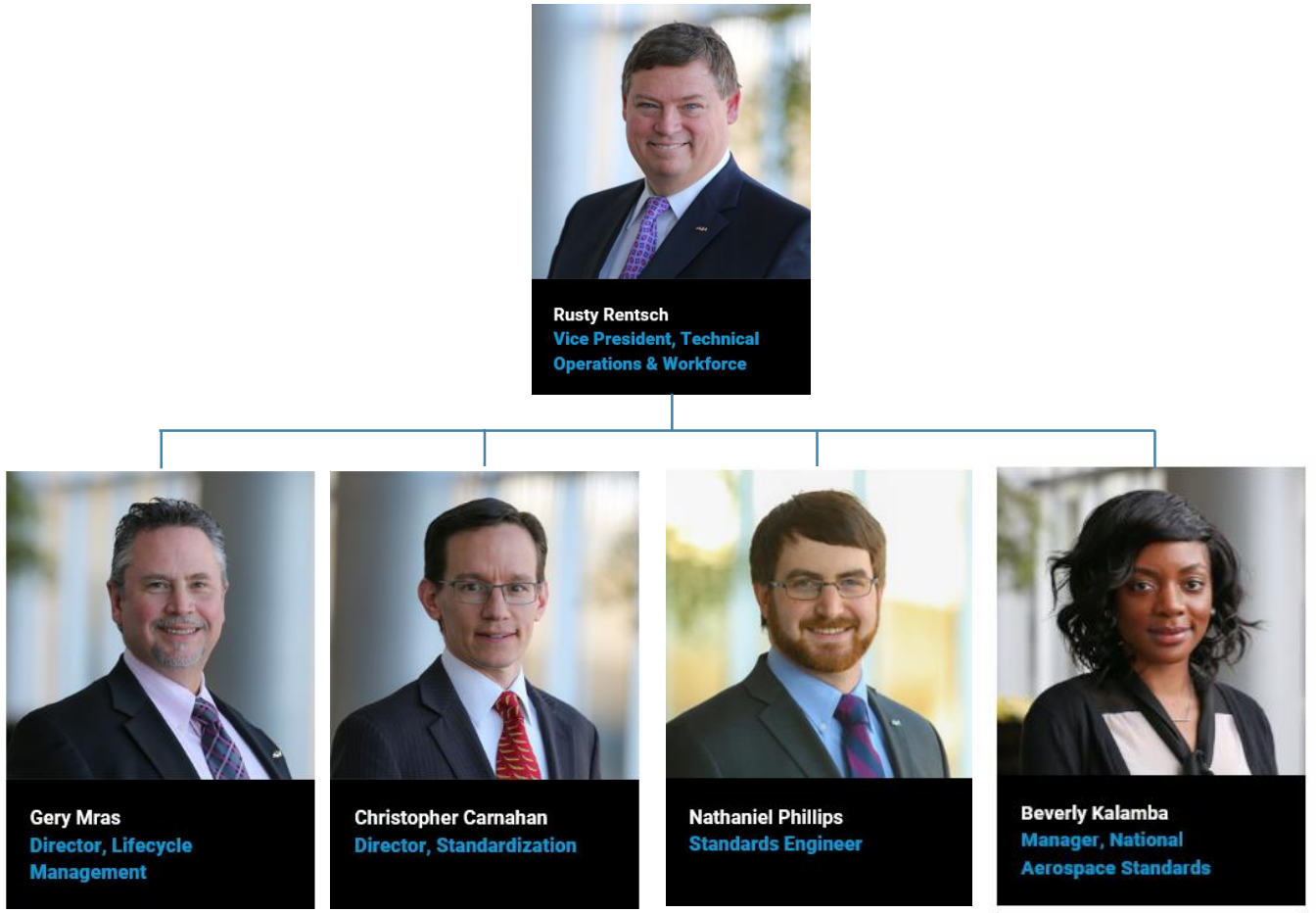
21st Century Workforce

- Growing sustainable/capable/eligible industrial base talent (Pilots/Engineers/Programmers/Machinists)
- Inspire the next generation workforce (e.g., Rocketry Challenge)
- Promote STEM education
- Enhance diversity & inclusion
- Strengthen government and industry workforce
- Incentivize degree & non-degreed

2018-19 Leadership & Organizational Design



Technical Operations and Standards Division Staff



AIA Technical Operations Council Strategic Initiatives

1. Advocate for U.S. research investment which benefits the aerospace and defense industry (Manufacturing USA, DARPA, Mantech/Title III, NIST, NASA, Services labs - AFRL…).
2. Advocate for aviation and defense safety and security regulations and policies, which are based on data driven risk-based analysis.
3. Model Based Engineering – continue journey for common definitions and protection from over regulation, insure competitiveness between traditional defense and new commercial entrants. Support the Model Base Engineering (MBE) Phase 2 project.
4. Product Support Sustainment and Engagement Plans: Support SECDEF directive for weapon system readiness improvements.
5. Ensure high-quality supply chain system efficiency.
6. Standards: Use roadmap approach for Standards planning, visibility, and prioritization to Influence standards of interest to A&D (with specific oversight for AIA NAS standards).
7. Promote business technology interoperability and cybersecurity resilience

AIA Councils and Committees

Division are comprised of 10 Councils

Acquisition Policy, Civil Aviation Leadership, Civil Aviation, Communications, Defense Policy, International, Space, Supplier Management, Technical Operations, & Workforce Policy

Division are comprised of 30 Committees

- Civil Aviation 4
- International 4
- National Security 7
- Space 3
- Technical Operations & Standards 6 ✓
- Membership: Supplier Management 2
- Legislative Affairs 4

Presently AIA is comprised of approximately 370 members companies
The allocation of associate members Vs. full members is 50/50

Council and Committee Descriptions

Technical Operations Council

AIA Goal: Policy for Research, Development, Engineering, Manufacturing , Quality, Sustainment, Interoperability, and Standardization
Participants: Senior (VP) Engineering Executives and Senior Technical Fellows
Council Lead: Rusty Rentsch, Vice President, Technical Operations & Workforce

Engineering Management Committee, (G. Mras)

Subject: Systems Engineering, Manufacturing, LOTAR, Tooling, **Material Risk Management , Policy and advocacy**
Participants: Director-level Engineering Management Professionals, Technical Fellows
Targets: DoD, NASA, FAA, Commercial Aviation,

Quality Assurance Committee, (G. Mras)

Subject: Quality Management Systems, FOD Prevention & NDT Qualification Standards, **Counterfeit Parts, Policy and Advocacy**
Participants: Director/VP-level Quality Assurance Executives
Targets: DoD, DCMA, DLA NASA, FAA, Commercial Aviation,

Product Support Committee, (G. Mras)

Subject: **Sustainment Practices, Materiel Readiness**, Maintenance Policy, Technical Publications (S1000D), Integrated Logistics Support Specifications (S-Series) and Advocacy, Public Private Partnering & Outcome based Logistics
Participants: Snr Manager to VP-level Logistics and maintenance SMEs, Technical Data Writers and Program Managers
Targets: DoD, DHS, DCMA, DLA, DMSMS, NASA, DISA, FAA, ASD, ATA and Commercial Aviation

Business Technology Interoperability Committee (C. Carnahan)

Subject: Business Process Standards, Advocacy, Electronic Data and Information exchange
Participants: Information Technology, Business process and data exchange subject matter experts
Targets: DoD, DHS, FAA, NIST, ASD, ISO

National Aerospace Standards Committee (C. Carnahan)

Subject: **Developing Aerospace quality Standards**
Participants: Engineering practitioners, Manufacturing Managers
Targets: DoD, DLA, DCMA, NASA, Civil Aviation

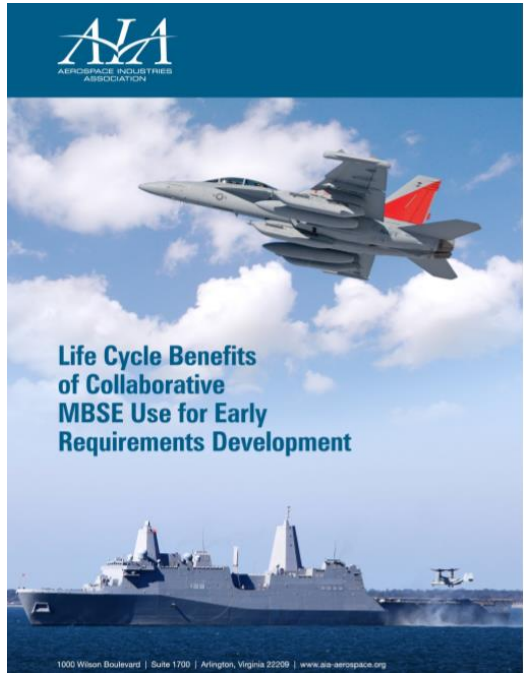
Standards Governance Board (C. Carnahan)

Subject: Oversite of AIA Standards programs and opportunities
Participants: Industry Standards Experts and Government users
Targets: AIA Policy Councils DoD, FAA NASA

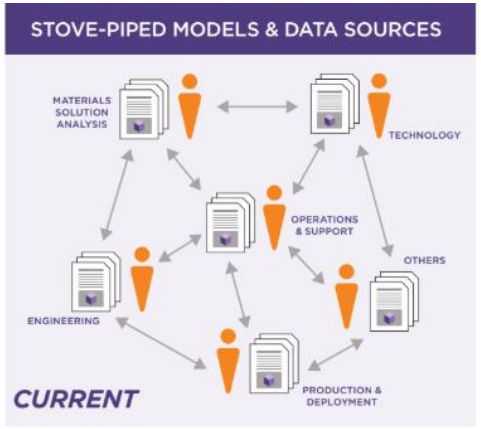
EMC 2019 Projects Overview

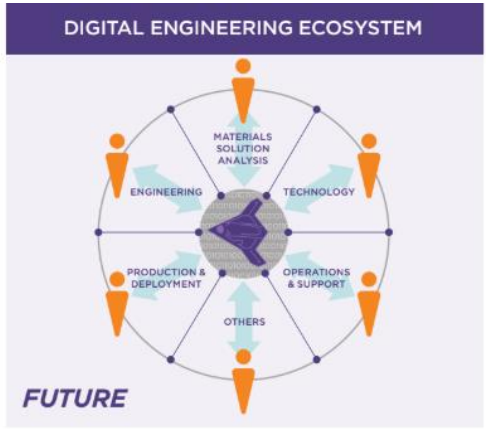
- Collaboratively Develop Model Based Engineering Roadmap
- Rapid Response Network- Chemical Restrictions and Bans
- Develop Air Worthiness Curricula Standards
- Execute 5 yr., EMC Standards Roadmap
- Develop, Review and Approve LOTAR Standards
- Rewrite NAS3306 “FACILITY REQUIREMENTS FOR AIRCRAFT OPERATIONS”
- Support update of DOD Parts Management Guide
- Collaborate with other engineering associations, e.g., NDIA and INCOSE
- STEM

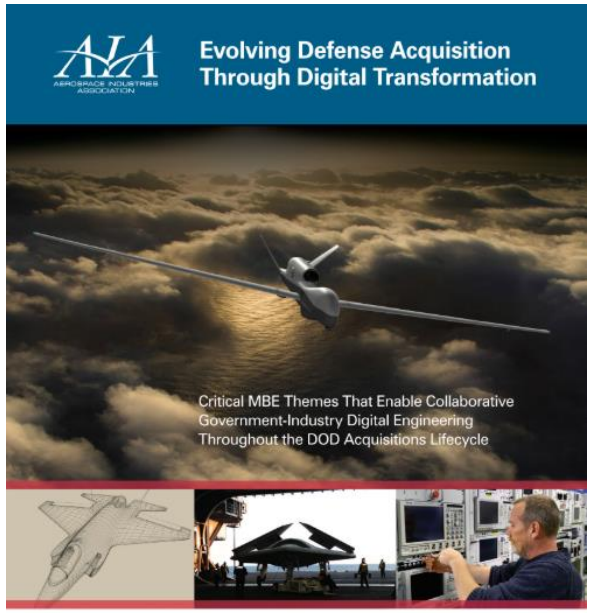
Collaborative Development with OSD on Digital Transformation Whitepapers



https://www.aia-aerospace.org/report/life-cycle-benefits-of-collaborative-mbse-use-for-early-requirements-development/

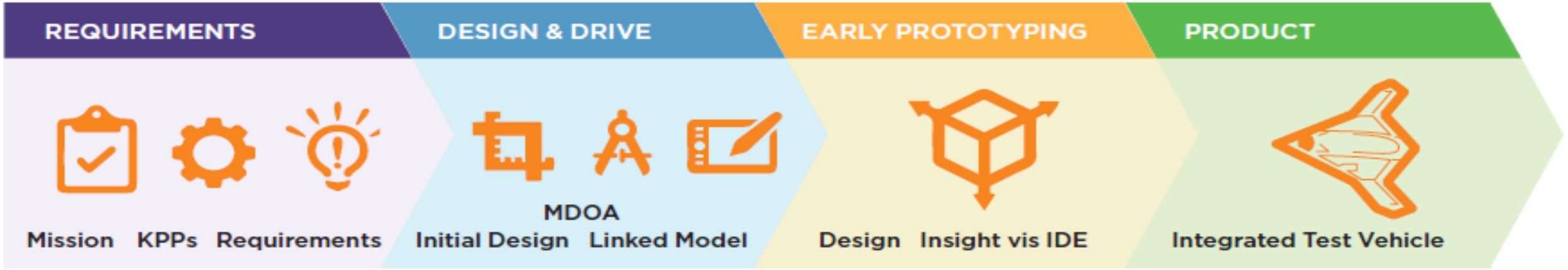






https://www.aia-aerospace.org/report/evolving-defense-acquisition-digital-transformation/

AIA MBE Team Summary



Objectives ✓

The **AIA Model Based Engineering (MBE) team** will collaborate with industry and government groups to realize the Digital Engineering (DE) transformation in DoD acquisitions. The team will focus on developing roadmaps and standards in the following four areas:

1. *Connected Digital Artifacts*
2. *Digital Cultural Transformation*
3. *Intellectual Property & Data Rights*
4. *Trusted V&V'd Digital Artifacts*

Key Deliverables ✓

- 5 year DE transformation roadmap & execution plan
- DE Standards roadmap

Stakeholders/Customers ✓

- Office of Secretary of Defense (OSD) SE
- DoD: NAVAIR, AFRL
- Industry Partners

2019 MBE Strategic Focus Areas

Team Lead: Dr. Peter Pan, NG

1. **Connected Digital Artifacts:** *Jason Boss (L3 Comm)*
   Help the DOD and industry connect and integrate disparate model types: across various disciplines, domains and classes to form a single source of truth for the system.

2. **Digital Cultural Transformation:** *Mead Jordan (BAE Systems)*
   Help the DOD and industry champion and promote a "systems thinking" mindset in realizing the model centric cultural transformation.

3. **Intellectual Property and Data Rights:** *Paul Segura (Boeing)*
   Help the DOD and industry collaborate and work together to ensure IP and Data are protected and managed effectively in the new model centric ecosystem.

4. **Trusted V&V'd Digital Artifacts:** *Paul Embry (Lockheed Martin)*
   Help the DOD and industry develop a digital artifacts maturity model to formalize the process in which new models are V&V'd and integrated into the technical baseline.

AIA Rapid Response Network (RRN)

Lead: Brenda Fukai-Allison, Boeing

Problem Definition

Increasing global chemical restrictions & bans creates risk for the aerospace industry.

Project Description

Provide a comprehensive engineering network to analyze and respond to emerging chemical issues that affect aerospace products, operations, and customer readiness.

Expected Result: Efficient and effective analysis and response to emerging chemical queries, proposed legislation, potential DOD requirements, and international regulatory changes.

Key Team Members:

Team Lead and Represented Companies:

- Brenda Fukai-Allison
- Jeff Bradford
- Greg Haataja
- Tony Phillips
- Robin Bari
- Myloc Le
- Costa Triantafyllidis

Monthly Meetings and engagement on upcoming restrictions from EU ECHA , EPA and DoD

EMC 2019 Standards Roadmap

EMC Lead Jason Boss, L3 Tech.

Existing: 70+ active standards assigned to EMC; plus several WGs

5 yr. plan:

- Digital Engineering Transformation plan (see MBE back up slide for description of #1-9 and spreadsheet)
- Stabilize many standards directly assigned to EMC
- LOTAR standards program (see Spreadsheet), dependencies: AP242, AP233, AP209.
- Maintain standards developed by EMC WGs (NAS3306, NAS9300 series (LOTAR), NAS cutting tool stds. (8), NAS807, NAS3500, etc.)

Timeline:

2019	2020	2021	2022	2023
-EMC 5yr review (10) -MBE roadshow briefing -NAS3306 review -LOTAR: Basic & Common P001 - 030, Composites P300 & P310, Electrical WH P400 & P410 -ACT: NAS898, NAS907, NAS937, NAS988, new Carbide End Mill std. -NAS3601 cancellation	-EMC 5yr review (11) -MBE Stds. 1&2 published -LOTAR: Mfg. Features P132, Eng. Sim & Analysis P600, P620, MBSE P500 -ACT: NAS937, NAS965, NAS986, NAS897	-EMC 5yr review (21) -NAS807 (seaplane floats) -MBE std. 4&5 Published -LOTAR: Additive Mfg. P350 & P360, Elec. P420 & P430, MBSE P510 & P515 -NAS3500 review	-EMC 5yr review (23) -MBE stds. 3&6 -LOTAR: MBSE P520, Mech PMI P115e2, P126, PDM P230 & P240, EAS P630 -ACT: NAS890	-EMC 5yr review -MBE stds. 7,8,9 -LOTAR: MBSE P530, EAS P640, Electrical WH P440 & P450

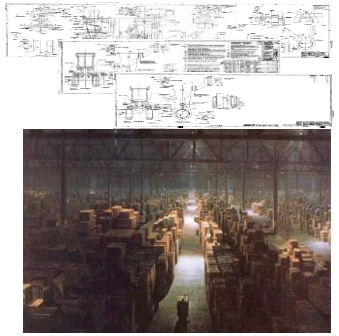
Resources needed: None at this time.

5-Yr EMC Consolidated standards Roadmap developed 1/2019 with AIA Standards Governance Board SGB approval 3/2019

LOng Term Archiving and Retrieval - LOTAR

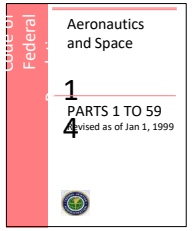
Problem Statement

With the emergence of digital data based processes, including model based definition, requirements were identified which predicate the need for a long term data retention solution(s) to meet the regulatory and business requirements. Traditional legacy retention and retrieval methods do not support complex digital product definition data.

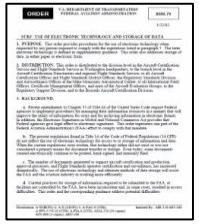


Paper-based process

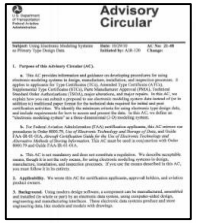
Past



Code of Federal Regulations

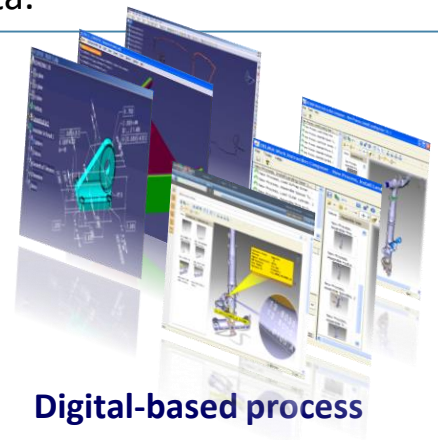


FAA Order 8000.79



AC21-48

Requirements



Digital-based process

Future

Project Description

Project goal: To *develop, publish and maintain standards* designed to provide the capability *to archive and retrieve* digital product and technical information, including 3D CAD and PDM data, in *a standard neutral form* that can be read and reused throughout the product lifecycle.

The standards are published as NAS 9300 US, (EN9300 Europe), series and cover both the information content as well as the processes required to ingest, store, administer, manage and access the information.

Key Team Members:

Team Leads and Represented Companies:

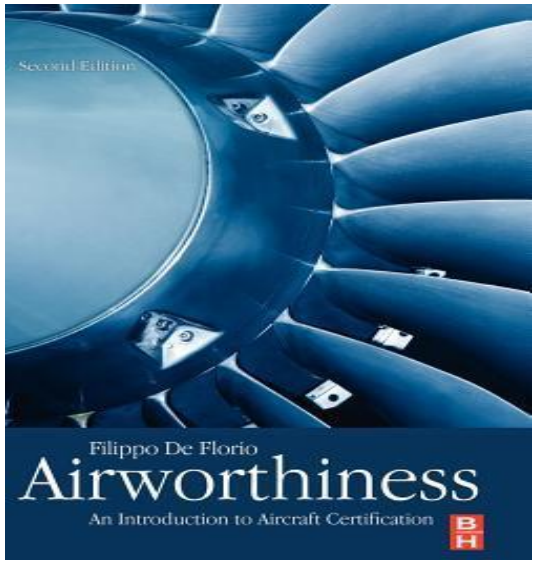
- Rick Zuray, Lead
- Jeff Holmlund, Mike Jahadi
- Eric Hall
- Dan Ganser, Lee Nash
- Phil West, Bob H.
- JYD, Pierre Duchier

BOEING
LOCKHEED MARTIN
GE Aviation
Gulfstream
A GENERAL DYNAMICS COMPANY
Raytheon
AIRBUS

Airworthiness Engineering Program Development

Problem: There is no standardized skills-set, experience level, qualifications, formal education, or professional training that constitute the necessary competencies required for an acceptable industry definition of an educational program in Airworthiness Engineering.

Opportunity: Standardization of these competencies across the aerospace industry in collaboration with academia should lead to broader talent pools and allow institutions to create standardized curricula to educate and train the current and future generations of airworthiness and sustainment professionals.



Participation

Lead is Steve Cook, NG

Lead Industry: Northrop Grumman, Boeing, Lockheed Martin, Gulfstream, BAE Systems, Embraer, Siemens

Government: FAA, USAF, Navy, Army, NASA, MITRE

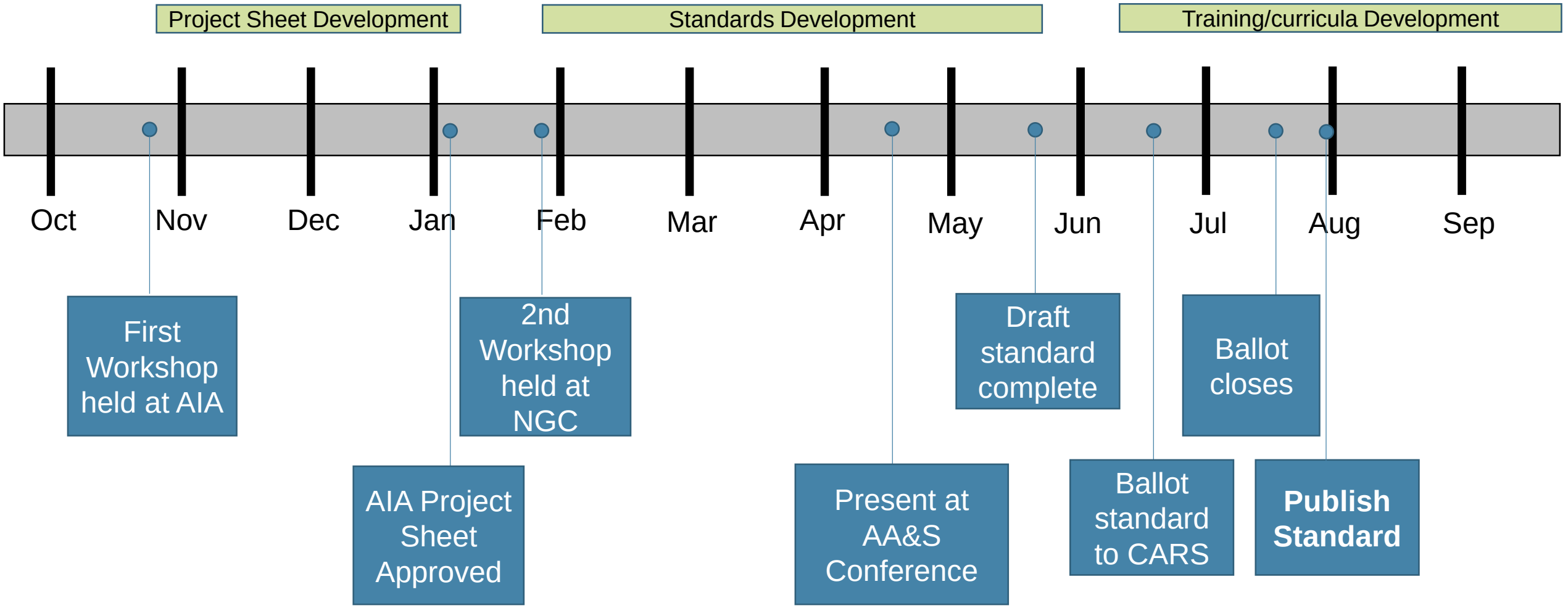
Academia: Embry-Riddle Aeronautical University

Associations: AIA, AAP (Association of Airworthiness Prof.)

Benefits

- AIA Airworthiness Engineering standards development addresses a key gap in our nation's workforce – skills for design, manufacturing, and sustainment in a highly regulated aviation environment
- Industry: Talent pool, efficiency, speed to market
- Government: Consistency, Quality
- Academia: Curricula standardization, training opportunities, faculty

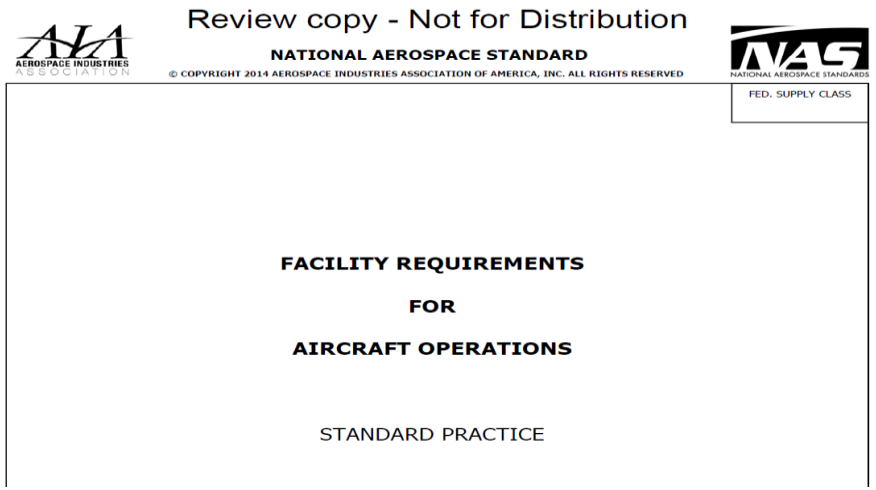
Timeline


Project Sheet Development
Standards Development
Training/curricula Development
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
First Workshop held at AIA
AIA Project Sheet Approved
2nd Workshop held at NGC
Present at AA&S Conference
Draft standard complete
Ballot standard to CARS
Ballot closes
Publish Standard

NAS3306 Update and reaffirmation
FACILITY REQUIREMENTS FOR AIRCRAFT OPERATIONS

Problem: Industry receiving a significant number of Corrective Actions Standard needs a significant rewrite. CARS are related to National Fire Prevention Assn. Standards.

Opportunity: Align DCMA Instruction 8210.1 Rev D on Aircraft Operations and NAS 3306. Include future changes of 8210 into 3306.



Results in a ballot on Revised 3306 standard

Participation

Lead is Mr. Mark Rodriguez, Lockheed Martin, Quality Ground Regulations Assurance, mark.j.rodriguez@lmco.com

DCMA Participation

Primes that have airfield Operations

Benefits

- Common Definitions between 8210.1 Rev D and 3306
- Reduction in CARS

Parts Management Best Practice

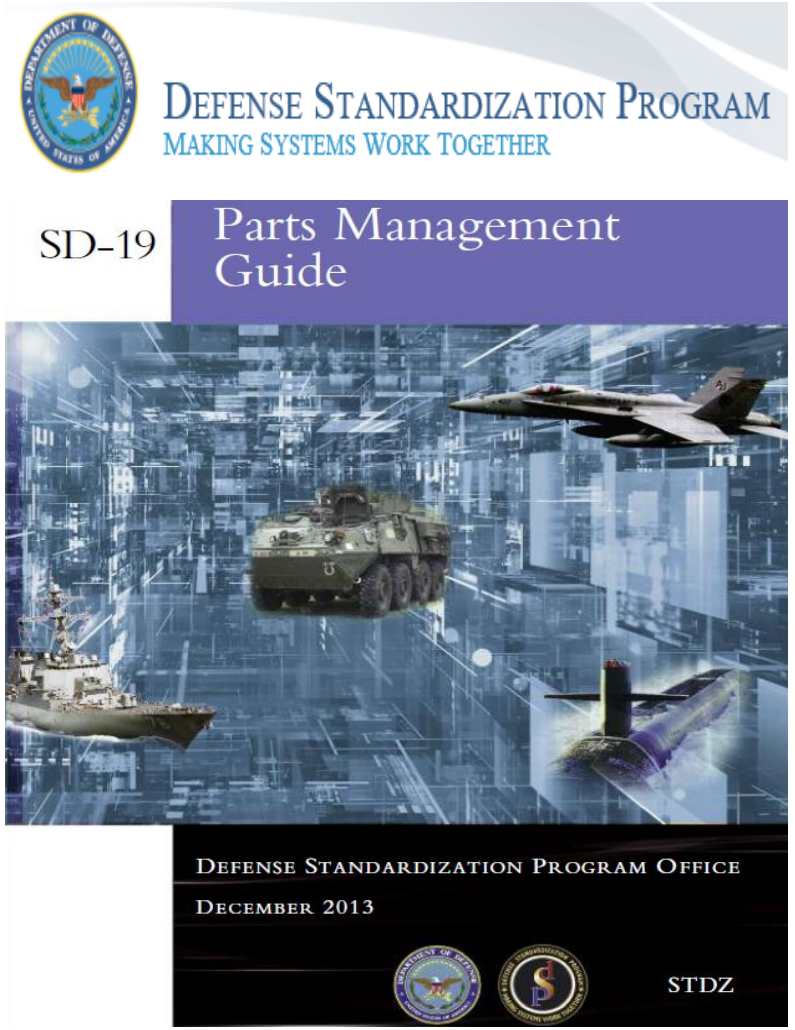
DOD has requested industry provide input to update the DOD Parts Management Best Practice Guide, SD-19

Format is questionnaire and possibly interview

DOD POC is Robin Brown

- OSD DMSMS Program Manager & OSD Parts Management Program Manager, DASD(SE) EE , Defense Standardization Program Office

USG PM Offices have been interviewed for input



Science, Technology, Engineering and Mathematics (STEM)

Team Lead: Pam Roberts , Spirit AeroSystems

State as of October 2018

- *STEM Summit*
  - *Date: Oct 11, 2018*
  - *Location: Phoenix, Arizona*
  - *Joint support with Workforce Policy Council*
- *Young Professionals Feature articles*

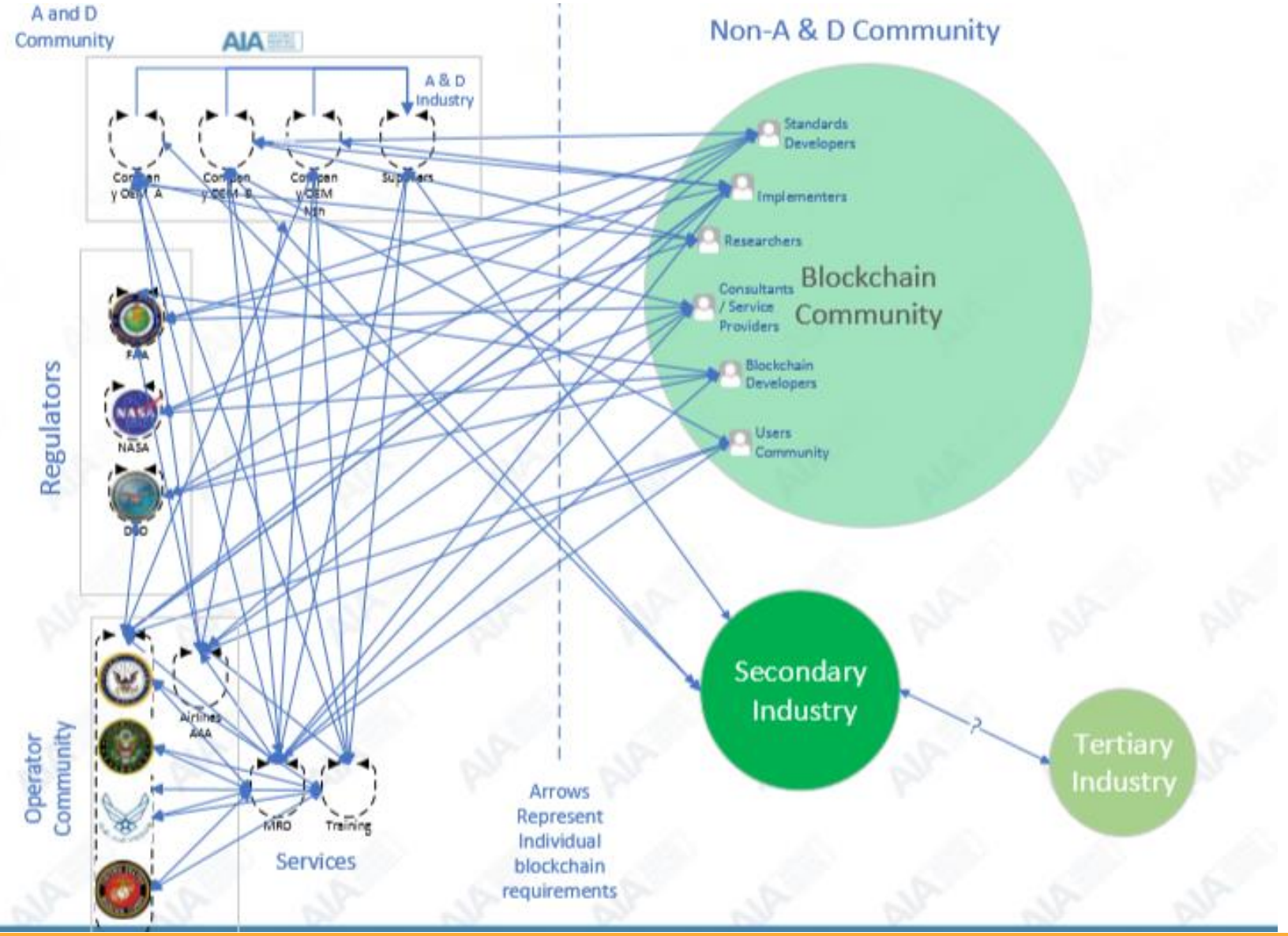
Present State

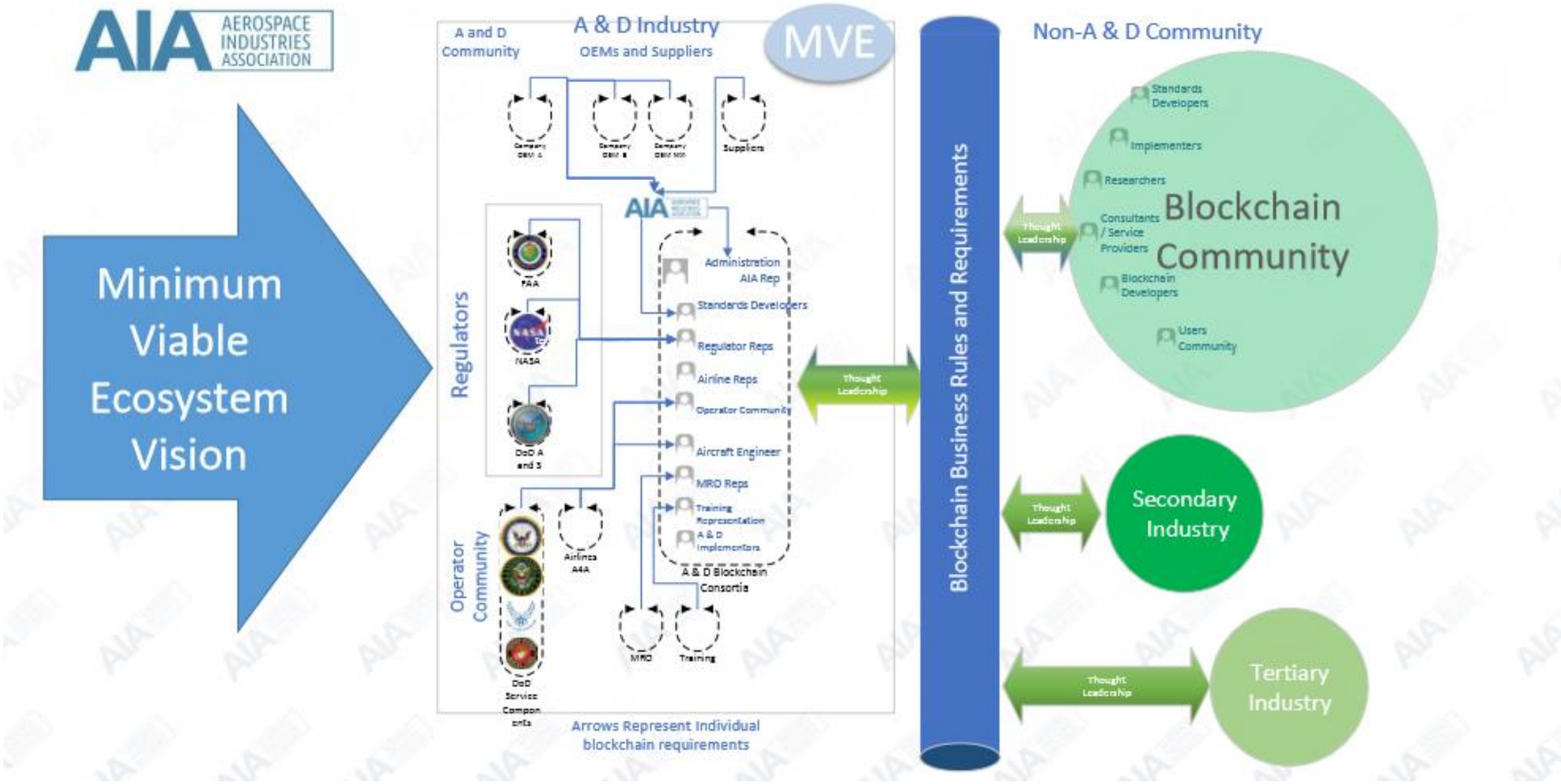
- Project on Pause
- AIA Senior Leadership reassessing STEM approach
- More national Focus
- South by Southwest conference sponsorship
- Alex Wagner
  VP, Strategy and Integration, Senior Advisor to the President briefed EMC 2/2019
- STEM has now become the responsibility of AIA's Strategy and Alignment division

EMC Guest Speakers

- **Dr. Mark Blackburn**, Stevens Institute on NAVAIR Digital Transformation
- **Gary Roedler**, Lockheed SE Fellow, and President INCOSE on INCOSE Vision 2020.
- **Dr. Don Gelosh**, WPI on INCOSE Competency Framework
- **Robin Brown** OSD DMSMS Program Manager & OSD Parts Management Program Manager, DASD(SE) EE , Defense Standardization Program Office
- **Dr. Paul Witherell,** NIST Project Leader, Additive Manufacturing
- **Scott Lucero,** (Acting) Director, Systems Engineering, Office of the Under Secretary of Defense, (Research and Engineering) Advanced Capabilities

Ecosystem Blockchain Adoption




AIA AEROSPACE INDUSTRIES ASSOCIATION
Minimum Viable Ecosystem Vision
A and D Community
A & D Industry
OEMs and Suppliers
MVE
Suppliers
AIA
Regulators
FAA
NASA
DoD A and S
Administration AIA Rep
Standards Developers
Regulator Reps
Airline Reps
Operator Community
Aircraft Engineer
MRO Reps
Training Representation
A & D Implementors
A & D Blockchain Consortia
Operator Community
Airlines A4A
MRO
Training
DoD Service Components
Arrows Represent Individual blockchain requirements
Thought Leadership
Blockchain Business Rules and Requirements
Non-A & D Community
Standards Developers
Implementers
Researchers
Consultants / Service Providers
Blockchain Developers
Users Community
Blockchain Community
Thought Leadership
Secondary Industry
Thought Leadership
Tertiary Industry
Thought Leadership

A & D Consortium Value

Meeting the 2050 Vision

- Engaging industry members and government/customer partners in leadership positions to align on key standards recommendations.
- Recommending specific areas for A&D industry investment in blockchain, government engagement, and international collaboration/global competitiveness
- Promoting A&D Blockchain positions at key industry and government forums
- Collaborating with other industry entities key standards organizations (e.g. NIST, SAE, OMG, ISO) to formulate a cohesive A&D direction/roadmap based on agreed standards
- Recommending how to structure governance bodies to manage compliance to emerging standards while facilitating the current rapid pace of innovation in blockchain
- Aligning with standards organizations to advance critical A&D industry use cases, while avoiding additional administrative or business process burdens.

https://www.aia-aerospace.org/report/blockchain-in-aerospace/

Staying Abreast with NDIA Strategic Focus & New Initiatives

NDIA Liaison to EMC is Bob Scheurer, P.E., P.M.P.
Systems Engineering / Assoc. Technical Fellow (ATF)
Boeing Defense, Space, & Security - St. Louis

2019

1. Virtual Technical Reviews
2. Developing the Engineering Workforce
3. Industry Chief Eng visits to OSD (rather than CEO visits)
4. Affordability (Workshop)
5. Software Assurance (Possible workshop(s))
6. Intellectual Property and Data Rights (CIDA Impact)
7. Tool Interoperability (Possible workshops)
8. Digital Engineering Environment (deliverables)

AIA NDIA: Adapting to the Changing Times

Final Observations and Conclusions

- Very little overlap in effort between AIA and NDIA
  - Great coordination with CODSIA
- The disconnect between the Industry, associations and military readiness:
  - It's a known fact 80% of the lifecycle cost is in the sustainment tail
  - Depth and breadth of the digital transformation into the sustainment tail
  - Section 813 panel on Intellectual Property
- Thoughts on Additive Manufacturing:
  - Competitively sensitive emerging technology
  - Multiple industry sectors all will different goals
  - Trusted model (Validation / Verification)
  - Dependency upon trusted machine and trusted process
    - What is the life span of certification of process before it become obsolete
- Who is the tail and who is the dog? The delicate balance between tool vendors or Industry driving the digital transformation

THE WAY TO WHAT'S NEXT

Aerospace Industries Association

AIA Vision 2050: For full report click ➔ Here

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