



The Open Group SOSA™ Consortium Technical Interchange Meeting

Dr. Ilya Lipkin
Steering Committee Chair – Gov



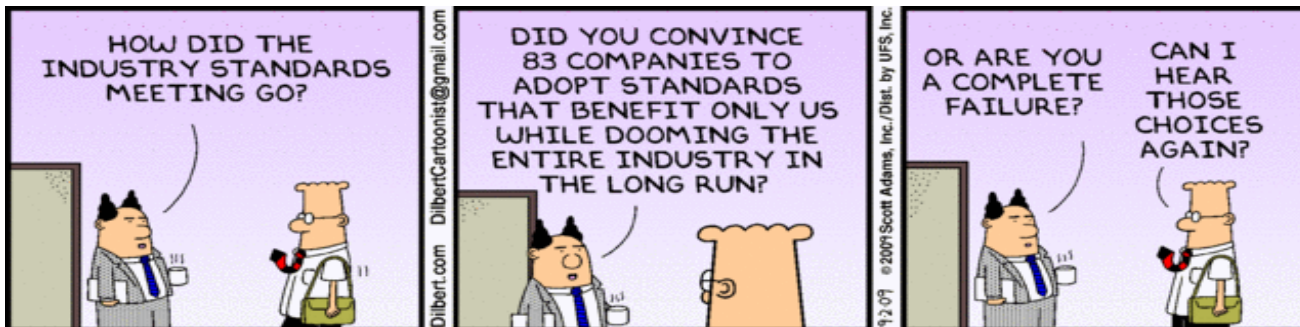
Nick Borton
Steering Committee Vice Chair – Ind

What is SOSA?

- Standards - EVERYBODY HAS ONE:



- HOST
- FACE
- OMS
- VICTORY
- STANAG
- VITA
- REDHAWK/TOA
- COARPS
- BIG IRON
- ARCADE
- OCS
- CMOSS
- MORA
- SCA
-
-



SOSA is an Integrative Collaborative Open Systems Architecture with >100 Partners

Why Sensor Open Systems Architecture (SOSA)?

SOSA Benefits Government & the DoD:

Requirements

SOSA promotes **procurement efficiency** through provision of consistent guidance for system requirements and use of standardized contracting language.

Acquisition

SOSA **shortens acquisition timelines** for standards-based capabilities that maximize component re-use, limit NRE (non-recurring engineering), reduce development costs.

Sustainment

SOSA systems feature increased commonality that enables **more efficient maintenance** using readily interchangeable components.

Interoperability

SOSA sensors allow for dramatically **enhanced systems interoperability**, enabling composable mission capabilities & novel multi-domain solutions.

SOSA Benefits Industry:

Risk

Mature, predictable procurement requirements allow for nimbler industry response with **reduced risk**.

Development Cost

Vendors can leverage proven modular decomposition, known interface definitions, standard tooling, and component re-use to **minimize NRE, lower costs**.

Product Families

Vendors can create functional product families based on the SOSA reference architecture, leveraging the inherent composable nature of the modular standard to focus on **innovative solutions**.

Strategic Sourcing

SOSA **broadens the sensor systems industrial base** by promoting COTS component vendors, creating a sensor ecosystem that lowers the bar to entry for creative small & non-traditional businesses

- *COST Sharing: DoD and Industry Share Costs of Developing SOSA*
 - **Skin in the Game**
 - Critical for Industry Buy In (See A lot Benefits for Participation)
 - **Crowd Sourcing**
 - **Long Term Savings**
- *Development Method: Incrementally develop and demonstrate SOSA components via Snapshots to full version(s)*
- *Series of prototype activities, in-step with intra/inter-service actions*
 - Execution Objective: Validate/verify SOSA specs via synchronized efforts w/ other organizations' efforts
 - Reduce risk for adopting programs by development → test → demonstration
 - Methodology mitigates effort's non-traditional/non-routine scope (i.e. requirement, funding, resources)

SOSA Efficiently Leverages Government and Industry Investment



ENDORSEMENTS AND DIRECTIVES



Office of the Secretary of the Navy
1000 Navy Pentagon
Washington, DC 20350-1000

Office of the Secretary of the Army
101 Army Pentagon
Washington, DC 20310-0101

Office of the Secretary of the Air Force
1670 Air Force Pentagon
Washington, DC 20330-1670

JUN 7 2019

MEMORANDUM FOR SERVICE ACQUISITION EXECUTIVES AND PROGRAM EXECUTIVE OFFICERS

SUBJECT: Modular Open Systems Approaches for our Weapon Systems is a Warfighting Imperative

Victory in future conflict will in part be determined by our ability to rapidly share information across domains. Sharing information from machine to machine requires common standards.

For the past several years, each of the Services has been developing, demonstrating, and validating common data standards through a cooperative partnership with industry and academia. This work has resulted in the establishment of Open Mission Systems/Universal Command and Control Interface (OMS/UCI), Sensor Open Systems Architecture (SOSA), Future Airborne Capability Environment (FACE) and Vehicular Integration for C4ISR/EW Interoperability (VICTORY) among other standards.

We have reviewed the capabilities of these common standards. We determined the continued implementation of these standards, and further development of Modular Open Systems Approach (MOSA) standards in areas where we lack them is vital to our success. As such, MOSA supporting standards should be included in all requirements, programming and development activities for future weapon system modifications and new start development programs to the maximum extent possible.

In an effort to formalize our approach to MOSA, Service Acquisition Executives will publish specific implementation guidance for our acquisition programs. Additionally, Standardization Executives should continue standards development efforts where we have gaps. Lastly, requirements and programming functions will ensure MOSA is reflected in our requirements and programs to ensure our future weapon systems can communicate and share across domains.

Richard V. Spencer
Secretary of the Navy

Mark T. Esper
Secretary of the Army

Heather Wilson
Secretary of the Air Force

Modular Open Systems Approaches for our Weapon Systems is a Warfighting Imperative

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DEPARTMENT OF THE ARMY
PROGRAM EXECUTIVE OFFICE
INTELLIGENCE, ELECTRONIC WARFARE AND SENSORS
BUILDING 302, 485 SURVEILLANCE LOOP
ABERDEEN PROVING GROUND, MD 21005-1646

SFAE/IEW/EW 20 June 2019

MEMORANDUM FOR RECORD

SUBJECT: Utilization of the Electronic Warfare & Cyber C4ISR/EW Modular Open Suite of Standards (EW&C CMOSS)

1. References:

- a. Memorandum, "Modular Open Systems Approach (MOSA) – Tri-Service Memo," OSA, OCN, CSAF, dated 7 January 2019.
- b. Document, Project Manager Electronic Warfare & Cyber (PM EW&C), Technical Management Division (TMD), EW&C CMOSS definition, dated 24 June 2019

2. As the Chartered Materiel Developer for Army Electronic Warfare & Cyber Programs of Record as well as Delegated Milestone Decision Authority (MDA) for Operational Need statements: #16-21509, and #17-22579, I approve and direct the use of the EW&C CMOSS for use and integration of all future Project Manager Electronic Warfare & Cyber Systems where applicable.

KEVIN E. FINCH
Colonel, AC/FA
Project Manager, Electronic Warfare & Cyber

2 Encls
1. Tri-Service Memo, 7 JAN 19
2. EW&C CMOSS, 24 JUN 19

Utilization of Electronic Warfare & Cyber C4ISR/EW Modular Open Suite of Standards (EW&C CMOSS)

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Tri-Service

PM EW&C

WILLIAM M. (MAC) THORBERRY NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2021



Statement in support of CMOSS/HOST/SOSA

Sensor Open Systems Architecture and C4ISR Modular Open Suite of Standards Military Standards Initiative

The committee is encouraged by the military services supporting Modular Open Systems Architectures (MOSA) on all future programs and platform modernization efforts. For example, the Army's C4ISR Modular Open Suite of Standards (CMOSS), and the Air Force's Sensor Open Systems Architecture (SOSA) standards are significant advances.

The committee appreciates the efforts to increase capabilities, speed development, speed technology refresh, lower costs for the Government, and increase competition in the industry. The committee is aware of marked progress made by the Army's PEO (Program Executive Office) C3T (Command, Control, and Communications-Tactical), PEO IEW&S (Intelligence, Electronic Warfare and Sensors), and Network-CFT (Cross-Functional Team). The committee commends such forward thinking and movement to unify around these standards.

Furthermore, the committee recommends that CMOSS and SOSA military electronics standards be more tightly connected to use the same hardware pinout standards and, more importantly, the same software data transport protocols, such as the Modular Open RF Architecture (MORA), to further solidify a common Department of Defense-wide technical approach to create an open systems architecture standard by which small businesses and large primes can compete. To achieve a more effective economy

of scale, the CMOSS and SOSA standards must both be a unified hardware and software ecosystem. The committee believes CMOSS is more established at this time and should lead.

Finally, the committee believes the military services should begin to combine missions to enable CMOSS and SOSA for multi-mission tactical communications, EW (electronic warfare), SIGINT (signals intelligence), and battlefield computing in one system. Such an effort will reduce the SWaP (size, weight, and power) on various platforms for the military electronics, and unify the industry around common military hardware, as well as software, standards.

The committee looks forward to further efforts by the Department of Defense to standardize procurement of modular cards and software according to the CMOSS and/or SOSA standards, for all future modernization and new weapons systems. These efforts will increase competition rather than have the classical single vendors drive their proprietary solutions which will cost the Government much higher modernization costs and decrease innovation.

<https://www.congress.gov/116/crpt/hrpt442/CRPT-116hrpt442.pdf>



SOSA CONSORTIUM MEMBERS & CMOSS RELATIONSHIP



SOSA™ Sponsors

- Air Force Life Cycle Management Center
- U.S. Space Command
- Collins Aerospace
- Joint Tactical Networking Center
- Lockheed Martin
- NAVAIR
- U.S. Army CCDC C5ISR Center
- U.S. Army PEO Aviation
- U.S. Army Project Manager Electronic Warfare and Cyber

SOSA™ Principals

- BAE Systems, Inc.
- Elbit Systems of America
- FLIR Systems, Inc.
- GE Aviation Systems
- General Dynamics
- Intel
- L3Harris
- Mercury Systems
- Northrop Grumman
- Physical Optics Corporation
- Raytheon
- Sierra Nevada Corporation
- SRC Inc.

SOSA™ Associates

- Abaco Systems
- Acromag, Inc.
- Aegis Power Systems
- Aitech Defense Systems, Inc.
- Ampro ADLINK Technology, Inc.
- Anduril Industries, Inc.
- Annapolis Micro Systems, Inc.
- Behlman Electronics, Inc.
- Bliley Technologies
- CACI International, Inc.
- Cobham Advanced Electronic Solutions Inc.
- Concurrent Technologies
- CoreAVI
- COTSWORKS, LLC
- CRFS, Inc.
- Critical Frequency Design
- Crossfield Technology
- Curtiss-Wright Defense Solutions
- Dawn VME Products
- Delta Information Systems
- DornerWorks
- DRS Signal Solutions
- DRTI
- EIZO Rugged Solutions, Inc.
- Elma Electronic Inc.
- Epiq Solutions
- FEI-Elcom Tech, Inc.
- Freedom Power Systems, Inc.
- Georgia Tech Research Institute
- GORE
- Great River Technology, Inc.
- Herrick Technology Laboratories, Inc.
- Interface Concept Inc.
- iRF Solutions
- Jovian Software Consulting LLC
- KEYW Corporation
- Kontron America
- LCR Embedded Systems, Inc.
- Lead Dog Technologies, LLC
- Leidos
- LGS Innovations
- Mellanox Federal Systems
- Meritec
- Micro Focus (US), Inc.
- Midwest Microwave Solutions Inc
- Milpower Source
- Motorola Solutions
- New Wave Design and Verification, LLC
- North Atlantic Industries, Inc.
- OAR Corporation
- Orion Technologies, LLC
- Orolia Defense & Security, LLC
- Pacific Star Communications, Inc.
- PCI Systems Inc.
- Pentek, Inc.
- Perspecta Labs Inc.
- QRC Technologies, LLC
- RADA Technologies, LLC (RADA USA)
- Rantec Power Systems, Inc.
- Real-Time Innovations
- Reflex Photonics Corp.
- Riverside Research
- RTD Embedded Technologies, Inc.
- Samtec
- Selex Galileo Inc.
- SimVentions
- Skayl LLC
- SMART Embedded Computing, Inc.
- Southwest Research Institute
- Spectranetix, Inc.
- SR Technologies, Inc.
- Star Lab Corp
- SV Microwave
- TE Connectivity
- Telephonics
- Tucson Embedded Systems
- University of Dayton Research Institute
- VITA
- VTS, Inc.
- Wolf Advanced Technology Inc.



SOSA™ Consortium - Brings together DoD, industry, and academia under a *rigorous consensus based approach* for standards development. SOSA Leverages CMOSS development. The consortium has 100 members. US Army CMOSS developers serve in many key roles within the consortium.

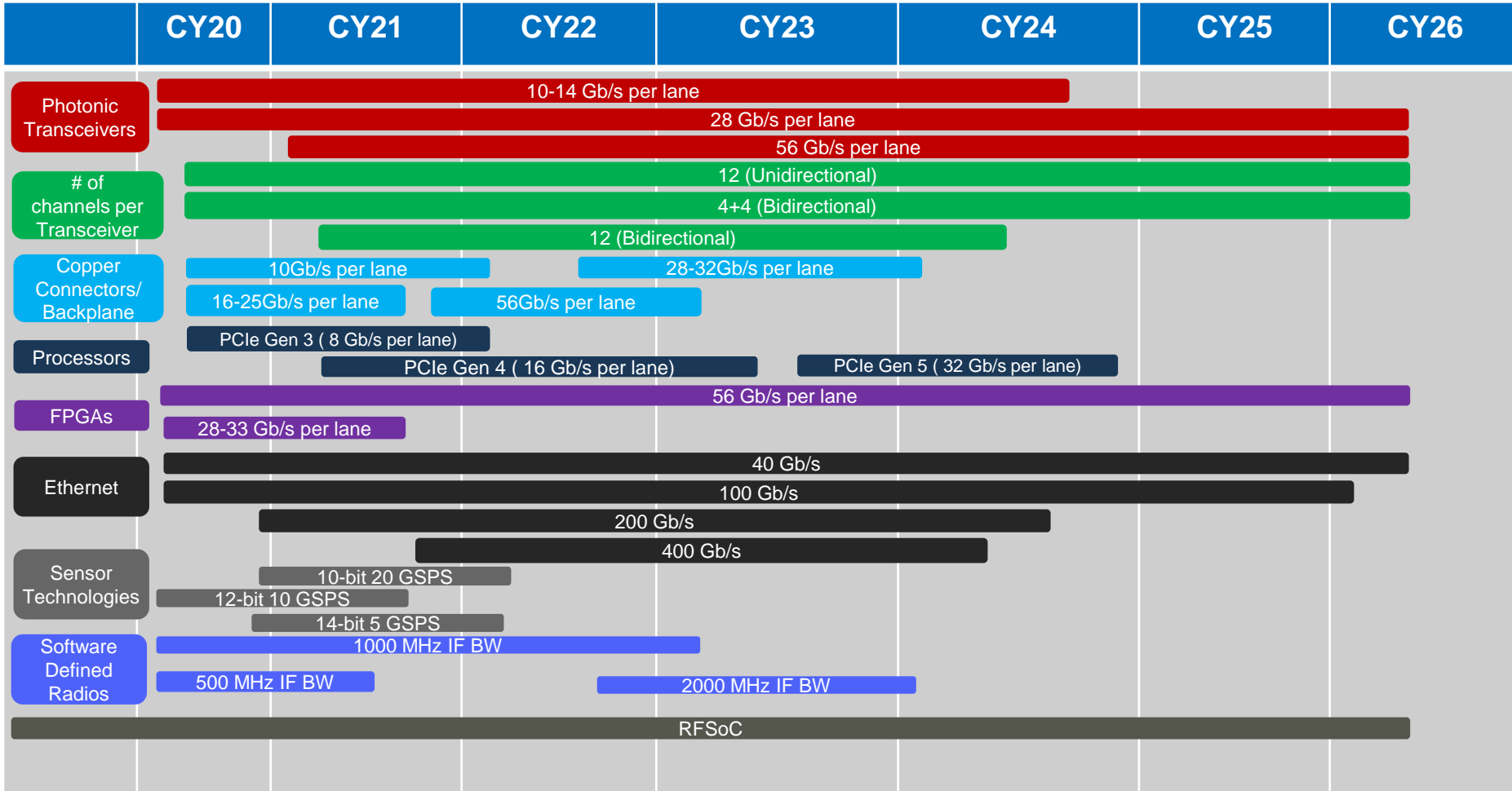


CMOSS - Standards developed and maintained by the US Army to support Army procurements which *respond to program office* schedules and needs. We strive to maintain alignment between CMOSS and the SOSA™ Technical Standard.

The SOSA Standard represents both governmental and industry organizations over 100 members



Commercial HW Roadmap



TSOA-ID Invitation to Participate in 2021 Virtual PlugFest

The SOSA™ TSOA-ID* “Virtual” PlugFest 2.0 at Dayton, OH allows companies to showcase:

- Plug-In Circuit Card Assemblies (CCAs)
- Chassis
- Power supplies
- SBC’s
- SDR’s
- Networking
- Storage
- Encryptions
- Radio Heads
- Electrical/Mechanical connectors
- Or any other part of SOSA capabilities that are aligned with SOSA Snapshot v2/Snapshot v3 or upcoming release of V1.0
- Basic Integration of HW and SW stack

Date: Tentatively Scheduled for First Week of April 2021

Vendors interested in Participation need to register and contact: Garrett Sargent, Ph.D. 937-768-9665, garrett.sargent@psoassolutions.com and John Topping 937-431-4447, john.m.topping@leidos.com

Due to COVID-19 concerns, this event will be held “virtually”

- **Quarterly Member Newsletter**
 - Showcases standards updates and member activities
- **SOSA Website** - <https://www.opengroup.org/sosa>
 - Member news releases and articles, events and webinars
 - Marketing guidelines
 - Consortium and technical standards resources
- **Events**
 - FACE™ and SOSA™ TIM & Expo March 23rd <https://www.expotim2021.com>
 - Tri-Service Open Architecture Interop Demos (TSOA-ID) www.tsoa-id.net
 - Member ecosystem plugfests
 - Member industry panels & news conferences at key trade shows
- **BWG Outreach Leads:**
 - Valerie Andrew valerie.andrew@elma.com
 - Gina Peter gina@pentek.com