



Naval Open Architecture

NDIA Small Business Breakfast Series



October 11, 2006

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PEO IWS 7.0



Imagine a Navy where our systems are **modular...**



...and **affordable** to upgrade



Could we accommodate
changing technology
and requirements?



Could we provide
interoperable capabilities
to the warfighter?



Could we build a better
fleet for tomorrow?



How will we get there?

OPEN ARCHITECTURE

A multi-faceted strategy providing a framework for developing joint interoperable systems that adapt and exploit open-system design principles and architectures

OA CORE PRINCIPLES

Modular design and design disclosure

Reusable application software

Interoperable joint warfighting applications and secure information exchange

Life cycle affordability

Encouraging competition and collaboration

Open Architecture is our path forward!



The ASN(RDA) Open Architecture Policy Memo, which created the OA Enterprise Team, cited the need for more Industry involvement in the OA initiative

DEPARTMENT OF THE NAVY
OFFICE OF THE ASSISTANT SECRETARY
RESEARCH, DEVELOPMENT AND ACQUISITION
1500 NAVY PENTAGON
WASHINGTON DC 20350-1000
AUG 05 2004

MEMORANDUM FOR DISTRIBUTION

Subj: SUMMARY OF OA EXCOMM OF JUNE 2, 2004

Encl: (1) OA EXCOMM Action Items
(2) List of EXCOMM Attendees

On Wednesday, June 2, 2004, I hosted the second Open Architecture (OA) Executive Committee Meeting (EXCOMM) at the Washington Navy Yard. The specific purpose of this meeting was to:

- Review the status of the action items from the first OA EXCOMM;
- Present the OUSD (AT&L) Tri-Service Assessment Initiative Naval Open Architecture Assessment Report;
- Review OA progress to date;
- Present a detailed OA Plan of Action and Milestones;
- Reaffirm Navy leadership support for the Navy Open Architecture initiative.

The primary focus of the EXCOMM was the presentation of the OUSD Tri-Service OA Red Team Assessment. The key findings were:

- OA is an absolutely critical basis for achieving our goals.
- The plan we approved needs to be modified, then understood and institutionalized.
- OA will not succeed without more emphasis on overall business strategy vice technical details.
- **More industry involvement is required.**

We must find ways to foster innovation within these OA initiatives and make the most of opportunities in the commercial marketplace. OA brings with it a profound cultural change where we should no longer think of traditional DoD prime contractors as the only contributors. In any case, we need to significantly involve industry and academia much more in the future to ensure OA's success.

Finally, I want to review our contractual obligations within the PEOs to fully understand all options with regard to alternate strategies for budgeting and contracting in order to maximize the benefits of open architecture.

Decision 4: More industry involvement is required.

Action: Identify mechanisms and venues to promote education, communication, and involvement in Open Architecture with industry and academia.

Mechanisms shall include, but are not limited to:

- Establishing an advisory team to interpret and advise other organizations on an as requested basis. Team should include industry and academia representatives.
- Implementing and sustaining a proactive OA education and information exchange program across the Industrial and Government communities

Lead: PEO IWS
Follow: Enterprise Team

- A key finding of the OA "Red Team" was that **more Industry involvement is required** to implement Open Architecture
- "We must **find ways to foster innovation** within these OA initiatives and make the most of **opportunities in the commercial marketplace**. OA brings with it a profound cultural change where we should no longer think of traditional DoD contractors as the only contributors. In any case, **we need to significantly involve Industry** and academia much more in the future to ensure OA's success."
- Mechanisms to promote Industry involvement in OA include "Implementing and sustaining a proactive OA education and **information exchange program** across the Industrial and Government communities."



On Feb. 14, 2006, we held our second OA Industry Day during which 5 topics we felt were important to small business were discussed

- ***Increasing Competition*** – Involve non-traditional contractors (small business) in the development of Naval warfare systems
- ***Data Rights*** – If the government correctly determines its future needs for data rights and obtains those rights, it will be able to share data with all prospective developers
- ***Award Fees*** – Financially motivate and reward prime contractors for including small businesses as subcontractors
- ***RFP Language*** – Subcontracting goals will require a predetermined percentage of contractors to be small businesses
- ***Peer Review*** - Participation should be open to anyone who has a candidate technology for transition

The OA Industry Day briefs are available on our website (<https://acc.dau.mil/oa>)

We are planning our third Industry Day for spring 2007



In our post-Industry Day survey, we sought to determine small business participation in the event and get its feedback

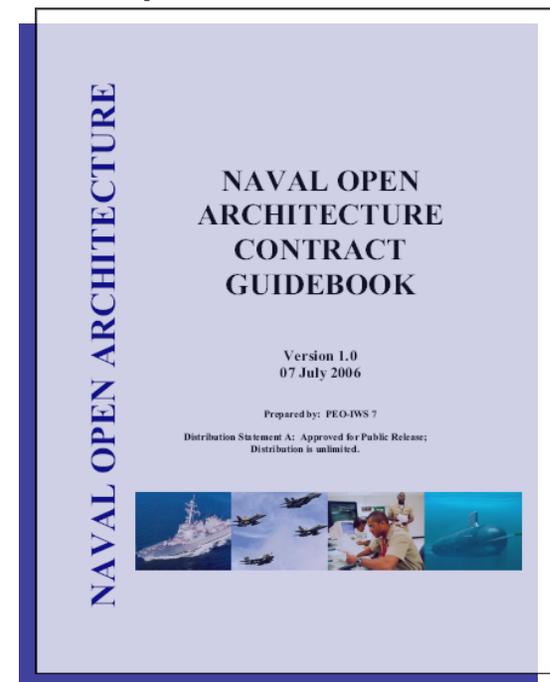
Results:

- One-third of respondents (41 out of 124) to our 2006 OA Industry Day survey worked for a small business
- Of the 30 small business respondents to the question, "Are you a prime integrator or subcontractor?", 8 said they were primes and 22 said they were subcontractors
- 38 out of 39 small business respondents said that OA Industry Day was either very helpful (19) or helpful (19)
- According to small business respondents, the three most important topics discussed at Industry Day were:
 - Overview of the OA enterprise initiative
 - Data rights in acquisition strategies
 - Increasing competition in acquisition strategies



In July, PEO IWS released the OA Contract Guidebook, which supports small business participation in Open Architecture

- Recommended Section C language discusses the need to “support **third-party development** and delivery of **competitive alternatives** of designs for software or other components or modules on an ongoing basis”
- Recommended Section L language directs Offerors to demonstrate how a proposal “promotes identification of **multiple sources of supply** and/or repair and supports flexible business practices that **enhance subcontractor competition**”
- Recommended Award Fee criteria for “Work Relations” suggests rewarding contractors for identifying and working with **vendors who possess innovative technologies and methods**
- The Naval OA Checklist states that encouraging the **participation of qualified small businesses** encourages **competition and collaboration**





The Software Hardware Asset Reuse Enterprise (SHARE) repository and license supports data sharing among Navy contractors, which benefits small business

- PEO IWS has developed a repository capability to share assets
 - Started in Jan 06 and operational Aug 06
 - Surface combat system centric
- It will link with an eventual enterprise repository
- Open to any contractor performing under a DoD contract
- 2 Programs contributing assets

PROGRAM EXECUTIVE OFFICE FOR INTEGRATED WARFARE SYSTEMS
SOFTWARE-HARDWARE ASSET REUSE ENTERPRISE
AGREEMENT

Preamble

0.1 THIS AGREEMENT PROVIDES THE TERMS AND CONDITIONS FOR CONTRIBUTOR ACCESS TO, AND EMPLOYMENT OF, EACH ASSET OR PORTION THEREOF CONTAINED IN THE PROGRAM EXECUTIVE OFFICE FOR INTEGRATED WARFARE SYSTEMS (PEO IWS), SOFTWARE-HARDWARE ASSET REUSE ENTERPRISE (SHARE). CONTRIBUTOR IS REQUIRED TO READ AND SEPARATELY EXECUTE THIS ENTIRE AGREEMENT BEFORE WITHDRAWING EACH SHARE ASSET OR PORTION THEREOF. BY SIGNING BELOW, AND/OR BY WITHDRAWING A SHARE ASSET OR PORTION THEREOF, CONTRIBUTOR AGREES TO BE BOUND BY THE TERMS OF THIS AGREEMENT.

0.2 IF CONTRIBUTOR DOES NOT AGREE TO THE TERMS OF THIS AGREEMENT, CONTRIBUTOR IS NOT AUTHORIZED TO ACCESS AND/OR WITHDRAW ANY SHARE ASSET OR PORTIONS THEREOF.

0.3 THIS AGREEMENT DOES NOT REPLACE OR SUPERSEDE ANY OTHER WRITTEN CONTRACT(S) AND/OR WRITTEN AGREEMENT(S) THAT CONTRIBUTOR HAS OR WILL HAVE WITH THE UNITED STATES GOVERNMENT.

0.4 ASSETS PLACED IN SHARE ARE NOT IN THE PUBLIC DOMAIN AND NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS MAKING ASSETS AVAILABLE TO THE PUBLIC. ASSETS SHALL BE WITHDRAWN FOR GOVERNMENT PURPOSES ONLY. THE GOVERNMENT IS THE SOLE AUTHORIZED CUSTODIAN AND MANAGER OF SHARE, INCLUDING ALL ASSETS CONTAINED THEREIN. EACH ASSET SHALL BE MARKED DISTRIBUTION D OR HIGHER IN ACCORDANCE WITH DOD DIRECTIVE 5230.24 AND ACCOMPANIED BY EXPORT CONTROL RESTRICTIONS WHERE APPROPRIATE. SEE PARAGRAPH 3.1 FOR FURTHER USE RESTRICTIONS. THE REQUIREMENTS OF THE NATIONAL INDUSTRIAL SECURITY PROGRAM OPERATING MANUAL, DoD 5220.22-M, APPLIES TO CLASSIFIED ASSETS UNDER THIS AGREEMENT.

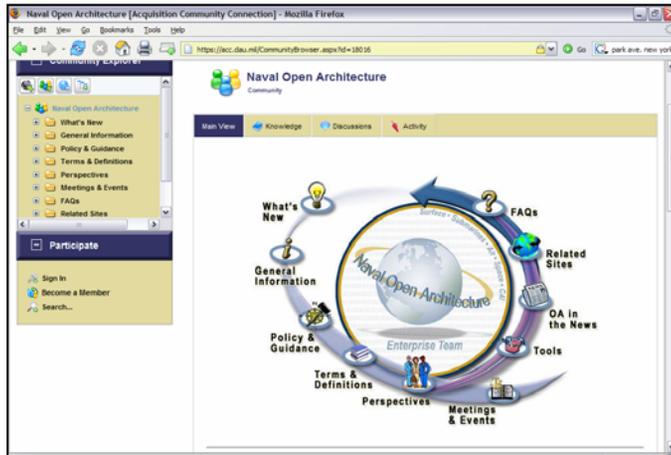
1.0 Notices

1.1 SHARE ASSETS reside on a Department of Defense (DoD) computer system. If CONTRIBUTOR is granted access to the DoD computer system, CONTRIBUTOR is hereby notified that the computer system, including all related equipment, networks, and network devices (specifically including



In addition, Industry should take advantage of other useful Open Architecture tools and information

OA Website – <https://acc.dau.mil/oa>



“The Business of Government Hour” radio show on WJFK-FM 106.7. In September, I was a guest on the show to discuss Naval OA. To listen to the podcast go to the website at <http://www.businessofgovernment.org>. Click “Radio Show” and then “Past Guests.”

Naval Open Architecture Continuous Learning Module – available from the Defense Acquisition University (DAU) at <https://learn.dau.mil>

Open Architecture Assessment Tool – available for download from the website

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A Design Tenet: Interoperability					
STANDARDS					
A1	The use of standardized data and functional models, based on an open standard domain ontology is essential to how readily separate systems can exchange information and appropriately utilize each other's functional capabilities. Where two systems don't understand the same thing in exactly the same way, there will be greater or lesser problems. The larger the system, the greater the problems that semantic misunderstandings will create.				
A1.1	What interoperability standards does the Unit of Assessment predominantly comply?				
NA	Not standards based	Project specific standards	Corporate standards	Domain standards	Enterprise / International standards
A1.2	How standards-based is the Unit of Assessment's data model?				
NA	Not standards based	Project specific standards	Corporate standards	Domain standards	Enterprise / International standards
SCOPE					
A2.1	What is the scope of the data model that the Unit of Assessment uses to support interoperability with other systems?				
NA	There is no explicit data model used	The data model is Unit of Assessment specific.	The data model is domain specific.	The data model is COI / Enterprise specific.	The data model is Joint / International Coalition specific.
A2.2	What is the scope of interoperability of the Unit of Assessment?				
NA	Standard - does not expect to interoperate with other systems	System - expects to interoperate with other systems within the POD	Domain - expects to interoperate with other systems within the Domain	COI - expects to interoperate with other systems within the COI	Joint Coalition - expects to interoperate with coalition forces
Services					
A3	A service is a software component, described by metadata (interface, SLA, policies, dependencies) which can be understood by a program. The metadata is published to enable re-use of the service by components which may be remote from it, and which need have no knowledge of the service implementation beyond its published metadata. A service can be implemented many ways, for example, an enterprise Web Service, an enterprise Java Bean, or a Business Process Execution Language construct. A description of the state data that it manages and its proper invocation sequences are optional.				
A3.1	To what extent does the Unit of Assessment, acting as a client, utilize mechanisms for the discovery and invocation of services?				
NA	No internal or external discovery services are used.	Services are discovered manually and invocation is static and hardcoded.	The unit of assessment uses external services that are dynamically located and invoked.	Service can be dynamically located and invoked.	Discovery of services is based on quality of service and services.

Quick start / About OAAT / Feedback / Assessment Information / Technical Questions / Programmatic Questions / Total Score / Tech Section

DAU Continuous Learning Center Naval Open Architecture

Introduction to Naval Open Architecture

"In almost every conceivable way, we are not the same Navy we were five years ago. We don't think the same; we don't plan the same; we don't operate the same or fight the same.

By adapting to new technology and new ways of doing business, the Navy is now more capable, more ready, more effective and more efficient. The only constant in our future is change. Change will demand hard work and the willingness to adapt. We must continue to sharpen the blade that is naval warfare, both at sea and ashore.

Though we are clearly more ready today than we have ever been, we have much work yet to do and effort yet to expend to be ready for tomorrow. We must be able to transform ourselves and our thinking quickly in response to an ever-changing, ever-challenging and ever-more-joint environment. Much is riding on that ability."



Wrap Up

- As ASN(RDA)'s OA Policy Memo stated, we need to exchange information across the Industrial and Government communities
- The Navy recognizes that industry, especially small business, is vital to its Open Architecture transformation. In an article published Oct. 10 in *Defense Daily*, in discussing Open Architecture ASN(RDA) Delores Etter stated:
 - "The key is in designing an architecture that is going to take advantage of commercial standards, the ability to pull pieces out and reuse them in other systems and platforms, and that **allows third parties access.**"
 - "This is really critical. This is where we bring in a much larger pool of people to help us develop things, [it] lets us access some of the people who haven't been involved because they didn't have the resources or capabilities to do the whole thing. ... **This opens up [the process] for a lot more of the small businesses.**"
 - Where the Navy wants to go, Etter said, is down a path that enables companies to compete for individual pieces [of the systems].



What do you need from the Navy to help us implement OA?

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