

# Naval OA Strategy



## Context and Drivers

*"The thing that always struck me about the Navy was the technology, the fact that we were always looking to the future, the fact that the Navy was in the forefront of great developments. And when I came in as the CNO, it was very important to me that we collectively, as a service, and as a department, never lose sight of always looking for the next big thing, always looking ahead, looking to make our capabilities better, more effective, and as warriors, more lethal, than what anyone else can put on the battlefield."*

— ADM Roughhead, Chief of Naval Operations, 1 Feb 2008

The world in which the Navy operates today is a significant departure from the environment dominated by Cold War tactics and the operational strategy of the last quarter of the 20<sup>th</sup> Century. Power is no longer measured just in terms of hard assets and strike capability. New threats are emerging everyday and our adversaries are leveraging the commercial market to rapidly develop new and unconventional weapons. At the same time, our missions are expanding. We are more engaged in global maritime security, humanitarian missions, warfighter operations, coalition operations and protecting our homeland.

As the global economy becomes more tightly integrated and relies on richer and more rapid exchange of information, so too must the Navy and Marine Corps leverage information-centric, common platforms that facilitate collaboration between joint forces and international partners. New systems must not only address current needs, but also have the flexibility and extensibility to address yet unknown capability requirements of the 21<sup>st</sup> Century.

There are a number of challenges we must overcome in order to achieve this desired technical state. Defense budgets will likely remain steady or decline in future years, thus enterprise architecture enabled software modularity and reuse become crucial elements of cost and risk reduction in procurement, maintenance and upgrading of systems. Contracts and incentives must reshape the way we do business with our industrial partners, which engaged in substantial consolidation in response to the post-Cold War reduction of defense spending and heretofore have been resistant to break away from the traditional, closed platform style of procurement. We must work to better understand our own requirements, as well as the value drivers of our defense industry, so that the new era of system development provides the Navy with cutting edge technology at reduced cost, on a shortened cycle time, and effectively rewards those industry partners most able to perform in this new business model and meet our changing needs. Open Architecture (OA) enables the Navy and Marine Corps to meet these challenges.

Naval Open Architecture is the confluence of business and technical practices yielding modular, interoperable systems that adhere to open standards with published interfaces. This approach significantly increases opportunities for innovation and competition, enables reuse of components, facilitates rapid technology insertion, and reduces maintenance constraints. OA delivers increased warfighting capabilities in a shorter time at reduced cost.<sup>1</sup> This initiative is a key enabler and pillar of the Department of Defense's (DoD) focus on joint architectures and evolutionary acquisition.

By adopting OA principles throughout the Naval enterprise today, we can build modular, affordable, future National Security Systems designed to meet the future needs of our warfighters. These systems will also be able to readily incorporate insertion of new technologies from a broad range of industry partners. However, as the CNO states, "The Navy will remain powerful ... by exploiting cutting edge technology." We must identify our path forward. This strategy lays out the Navy's vision, goals, and objectives for institutionalizing OA across the

---

<sup>1</sup> 12 December 2006 ASN RDA Rhumb Lines



enterprise. This document presents three overarching high level Naval OA goals and supporting objectives. Underlying activities and work products are detailed in the implementation plan.

## Vision

To meet the CNO's priorities to exploit cutting-edge technology and identify our path forward, the Naval OA vision is to:

*Transform our organization and culture and align our resources to adopt and institutionalize open architecture principles and processes throughout the naval community in order to deliver more warfighting capabilities to counter current and future threats.*

## Principles

To achieve the Naval OA vision, the Office of the Chief of Naval Operations Staff (OPNAV), Warfare Requirements and Programs (N6/N7) identified five principles which guide this effort.<sup>2</sup> These principles are:

1. **Encourage competition and collaboration** through the development of alternative solutions and sources.
2. Build **modular designs and disclose data** to permit evolutionary designs, technology insertion, competitive innovation, and alternative competitive approaches from multiple qualified sources.
3. Build **interoperable joint warfighting applications and ensure secure information exchange** using common services (e.g. common time reference), common warfighting applications (e.g. track manager) and information assurance as intrinsic design elements.
4. Identify or develop **reusable application software** selected through open competition of 'best of breed' candidates, reviewed by subject matter expert peers and based on data-driven analysis and experimentation to meet operational requirements.
5. Ensure **life cycle affordability** including system design, development, delivery, and support while mitigating Commercial off the Shelf (COTS) obsolescence by exploiting the Rapid Capability Insertion Process / Advanced Processor Build methodology.

---

<sup>2</sup> OPNAV Requirements Letter (OPNAV Itr Ser N6N7/5u916276 dtd 23 Dec 2005)



## Goals and Supporting Objectives

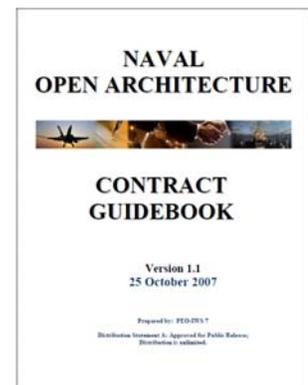
The steps required to achieve these principles are mapped out in a series of Goals and Supporting Objectives.

### **Goal 1**

***Change Naval processes and business practices to utilize open systems architectures in order to rapidly field affordable, interoperable systems***

#### **Supporting Objectives**

1. Incorporate OA policies and guidance in applicable DoD and DoN instructions and acquisition policies to establish a common approach for Naval OA across the enterprise
2. Support OPNAV in coordinating and aligning requirements and budget guidance across architectures and communities to support Naval priorities and minimize investments in duplicate capabilities
3. Assist the Milestone Decision Authorities, Program Managers, Resource Sponsors and Technical Authorities in assessing program openness, where appropriate, to make informed OA investment and reuse decisions
4. Include OA requirements and language in Acquisition Strategies, Acquisition Plans, and Contracts to ensure compliance with OA business and technical practices
5. Facilitate design disclosure and cross-domain component reuse to reduce costs and enable more effective technology insertion
6. Establish new methods for reducing lifecycle costs in system design, development, delivery and support by using cross-domain solutions and industry best practices



### **Goal 2**

***Provide Naval OA systems engineering leadership to field common, interoperable capabilities more rapidly at reduced costs***

#### **Supporting Objectives**

1. Establish system engineering processes and technical guidance to align architectures, identify widely adopted open standards, publish application programming interfaces, and determine data models
2. Facilitate Naval OA implementation efforts ensuring standardized and disciplined processes are utilized across domains





3. Identify and foster proofs of concept for mission area commonality to field additional capabilities at reduced costs
4. Ensure Naval OA processes facilitate the rapid transition of relevant Science & Technology products to acquisition programs
5. Work with Test & Evaluation (T&E) community and academia/industry partners to identify opportunities to reduce T&E expenses as a result of OA

### **Goal 3**

#### ***Change Navy and Marine Corps Cultures to Institutionalize OA Principles***

#### **Supporting Objectives**

1. Increase the awareness of OA through the development of standard communication tools and reporting
2. Increase the workforce skill sets through targeted training and ongoing research



3. Explore mechanisms to increase accountability for and reward adoption of OA practices
4. Conduct outreach to external stakeholders to increase the awareness of the Naval Open Architecture initiative and ensure consistent messages
5. Measure progress on cultural change

### **Execution**

The Naval Open Architecture Strategy serves as the overarching framework guiding all activities undertaken by stakeholders of the OA effort. Its successful and effective execution relies on substantive and concerted contributions of analysis, thought leadership and work by Resource Sponsors, Program Executive Officers, Technical Warrant Authorities and OAET Action Officers. The goals of this strategy directly support those of the Chief of Naval Operations and higher level Department of Navy strategy.