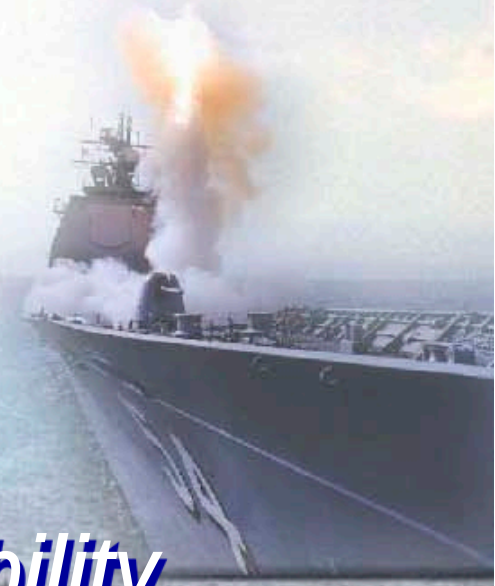
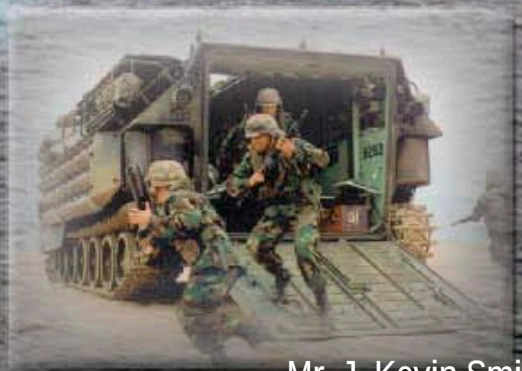
ASN (RDA)
Chief Engineer



Net-Centric Integration & Interoperability Improvement in the Department of the Navy



28 October 2009

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Mr. J. Kevin Smith
Technical Director
ASN(RDA) Chief Engineer's Office
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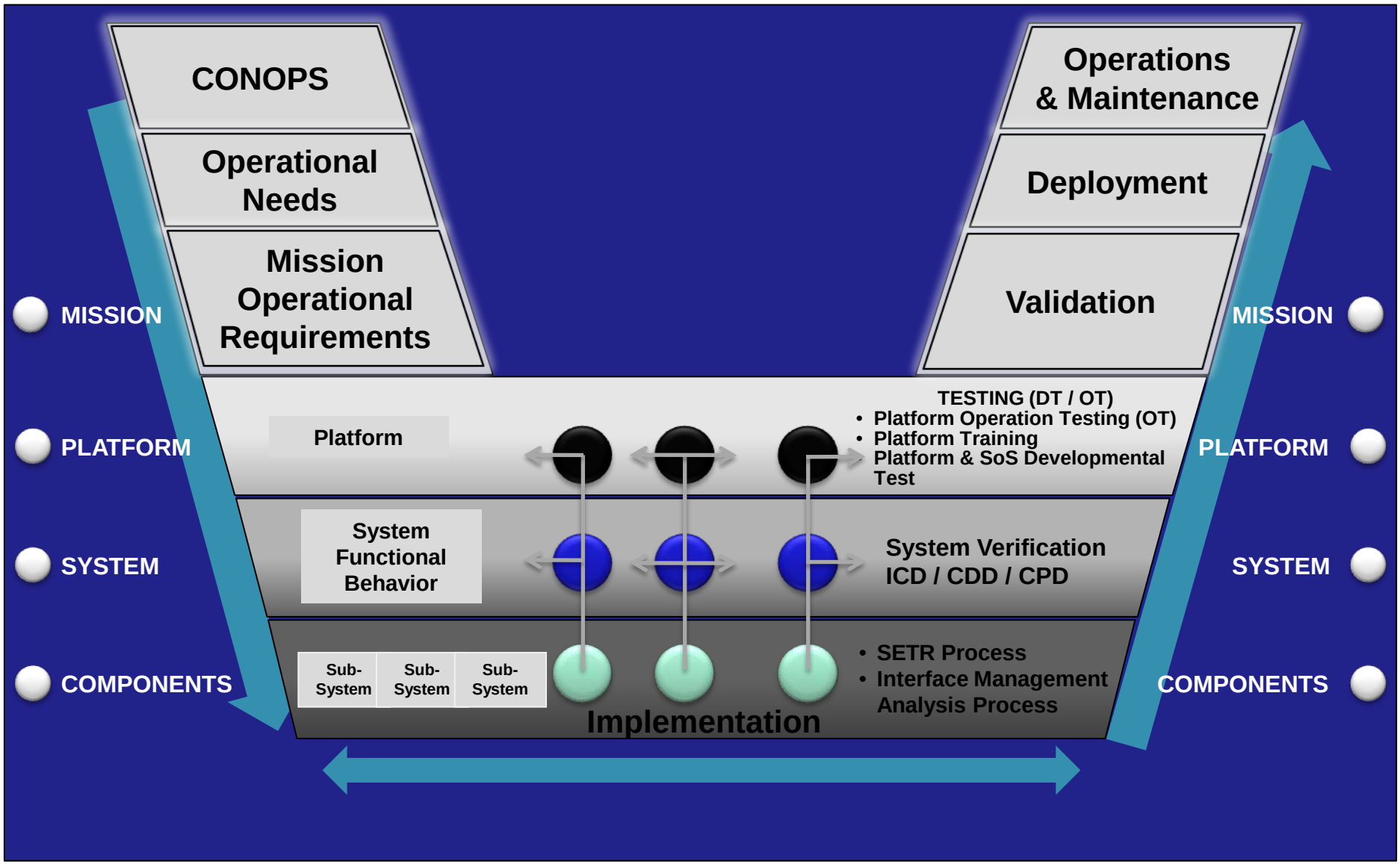
Purpose

- Provide a update on progress being made with Department of the Navy to improve integration, interoperability, and net-centricity across the Department of the Navy.

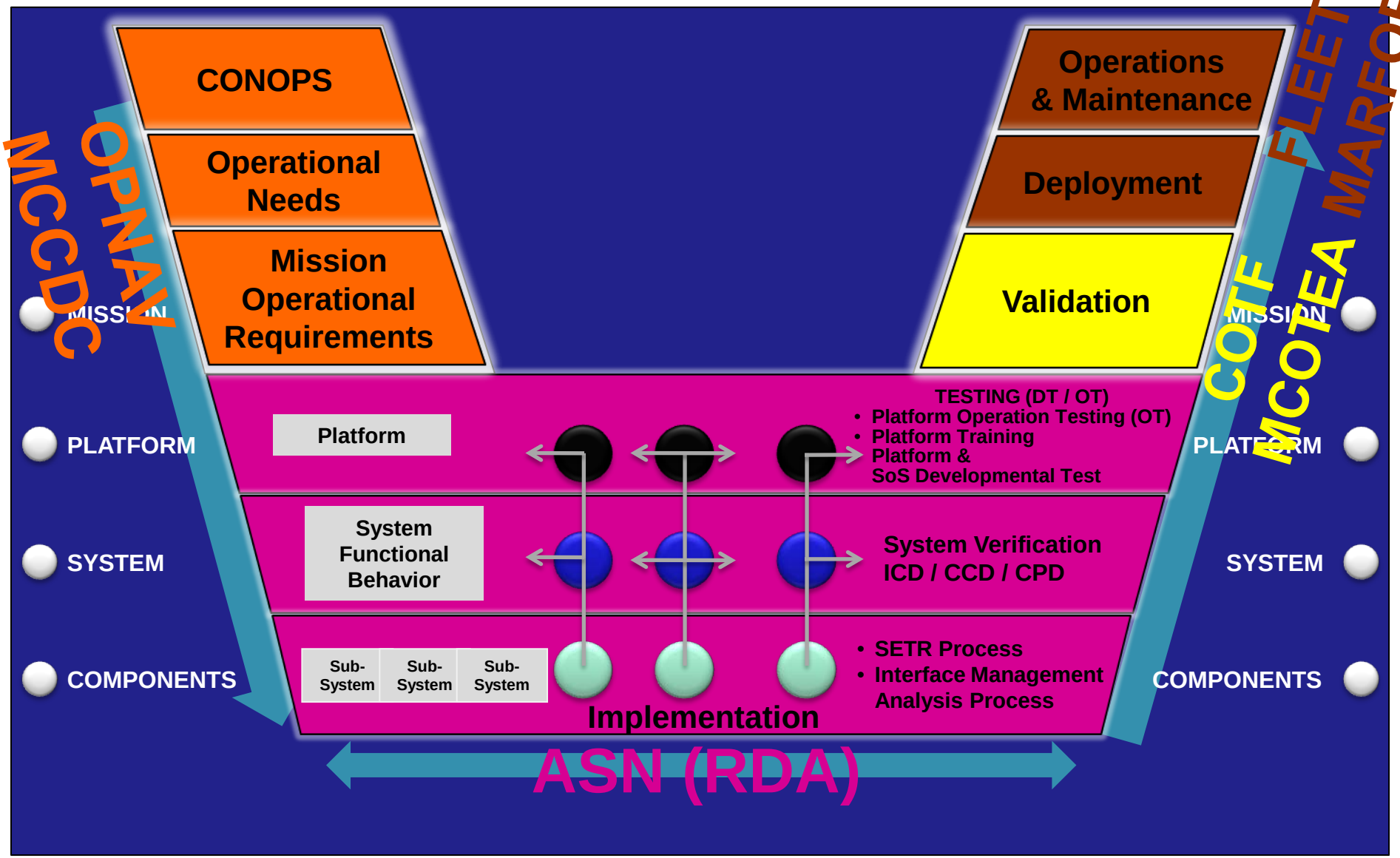
Background

- From February 2006 to September 2009, ASN(RDA) Chief Systems Engineer has been leading an initiative to improve the Department's approach to systems engineering of Net-Centric derived requirements.
  - ASN(RDA) CHSENG has assumed the role of systems-of-systems engineer at the Naval mission level.
  - PEO systems engineers and technical directors coordinate systems engineering within their organizations.
  - PMO system engineers have responsibility for program-level systems engineering.

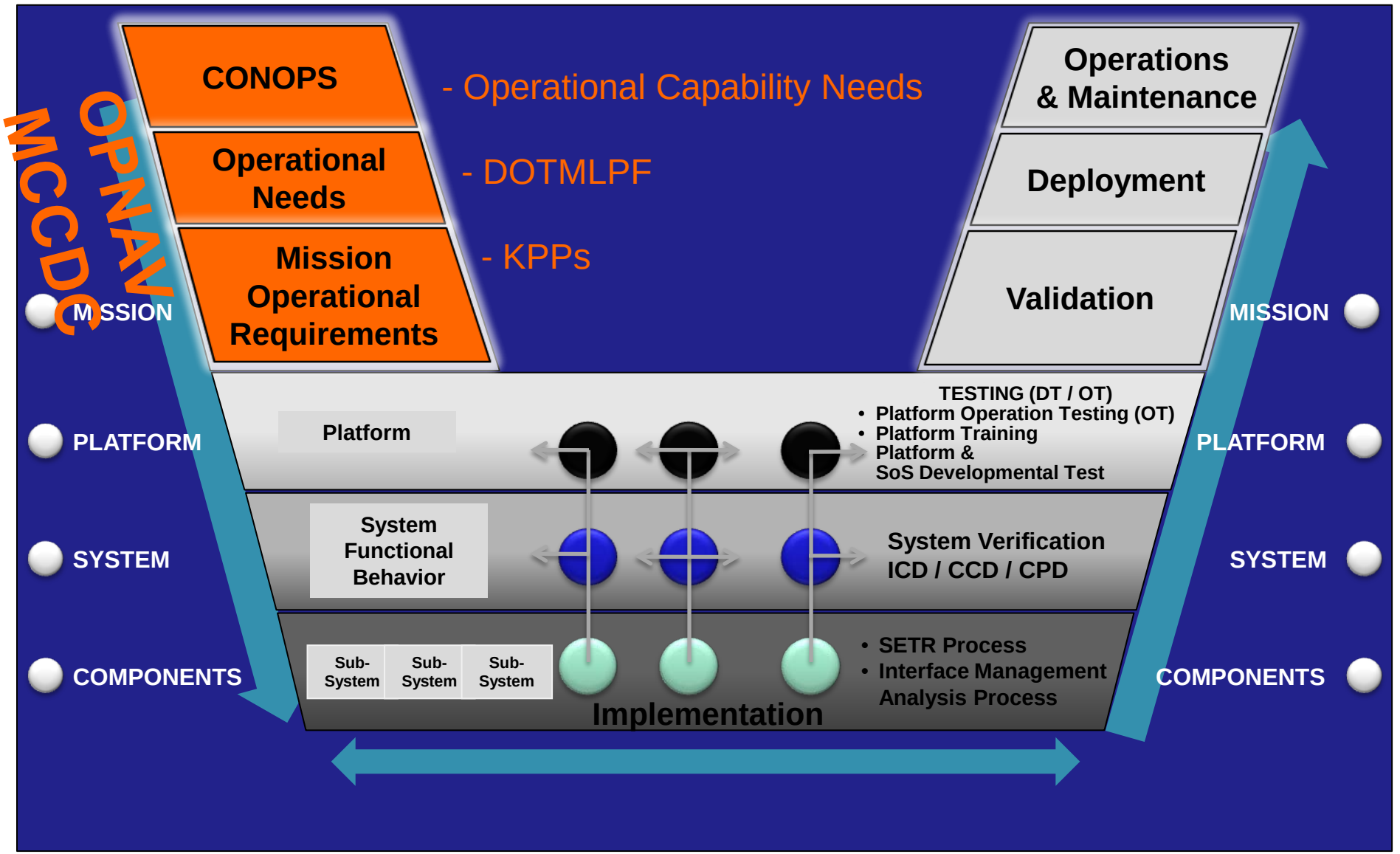
Mission Area System-of-Systems Engineering



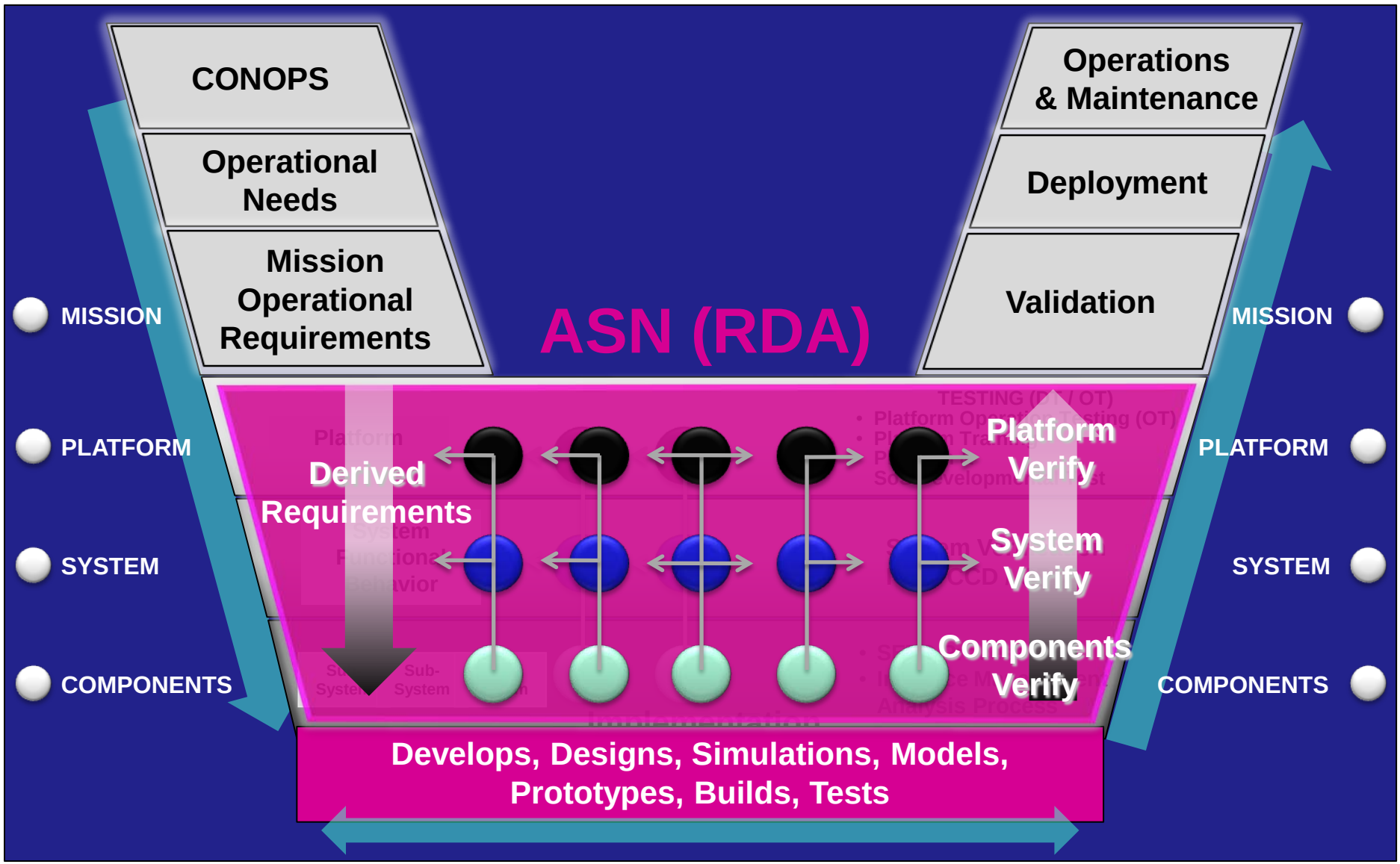
Mission Area System-of-Systems Engineering



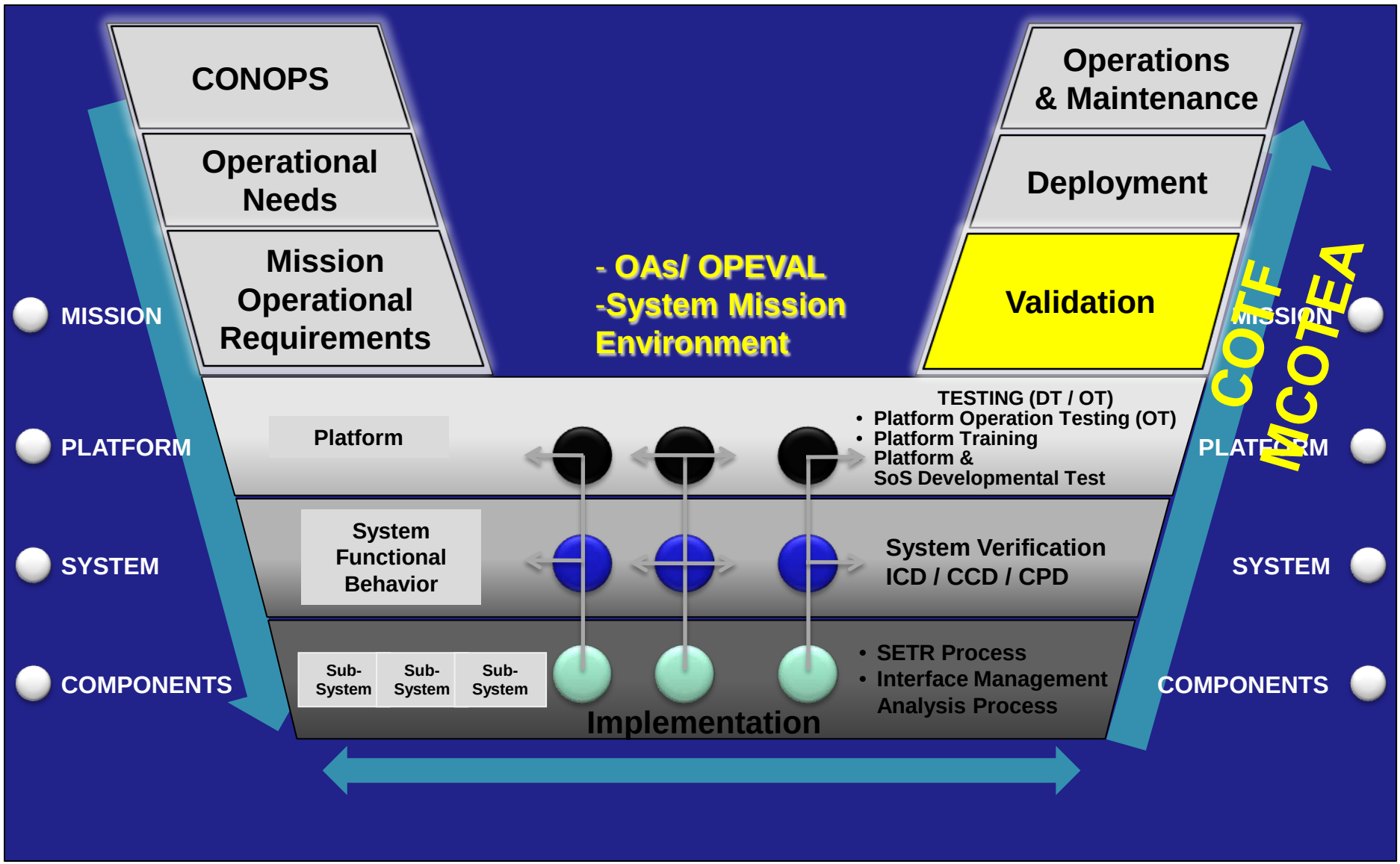
Mission Area System-of-Systems Engineering



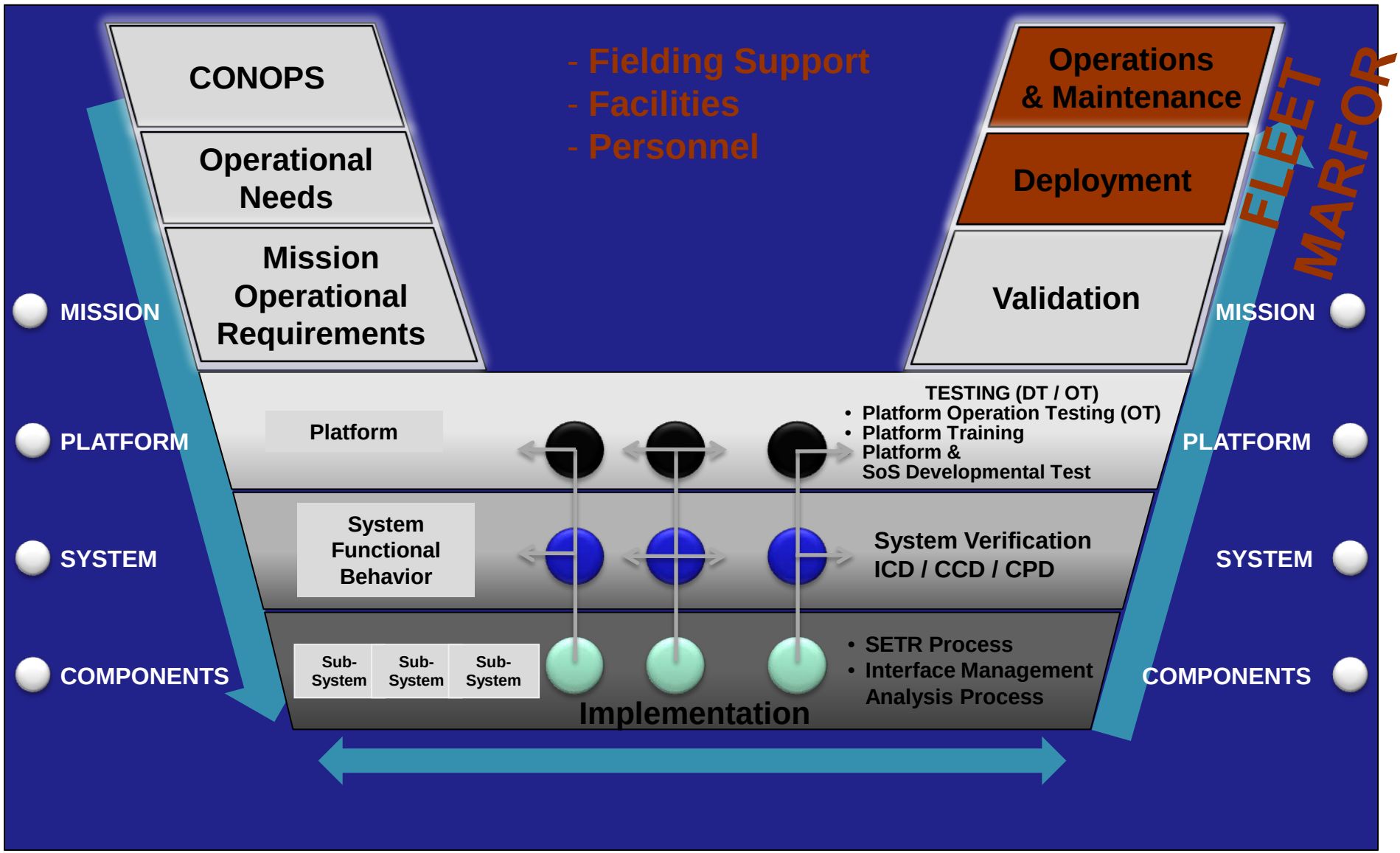
Mission Area System-of-Systems Engineering



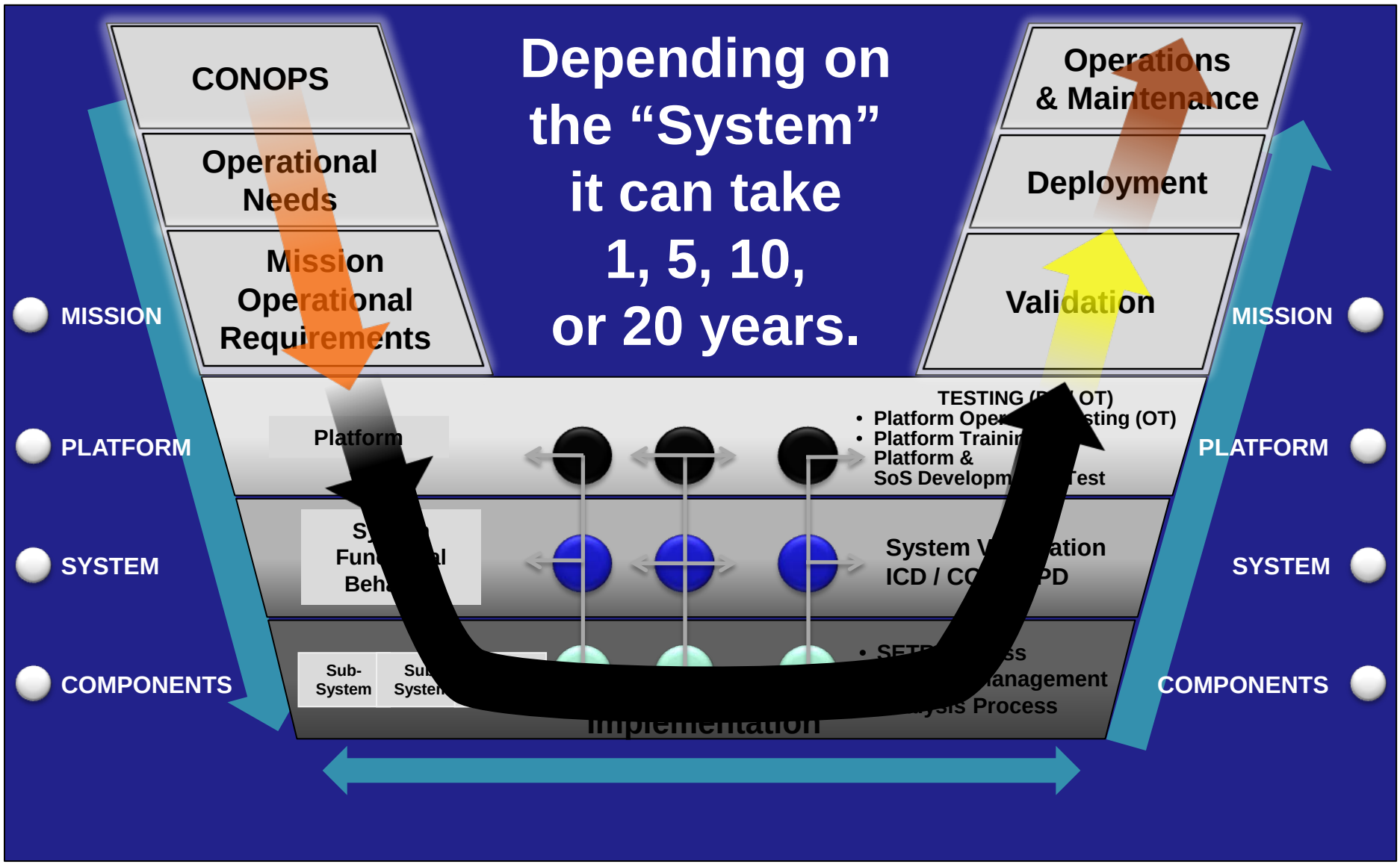
Mission Area System-of-Systems Engineering



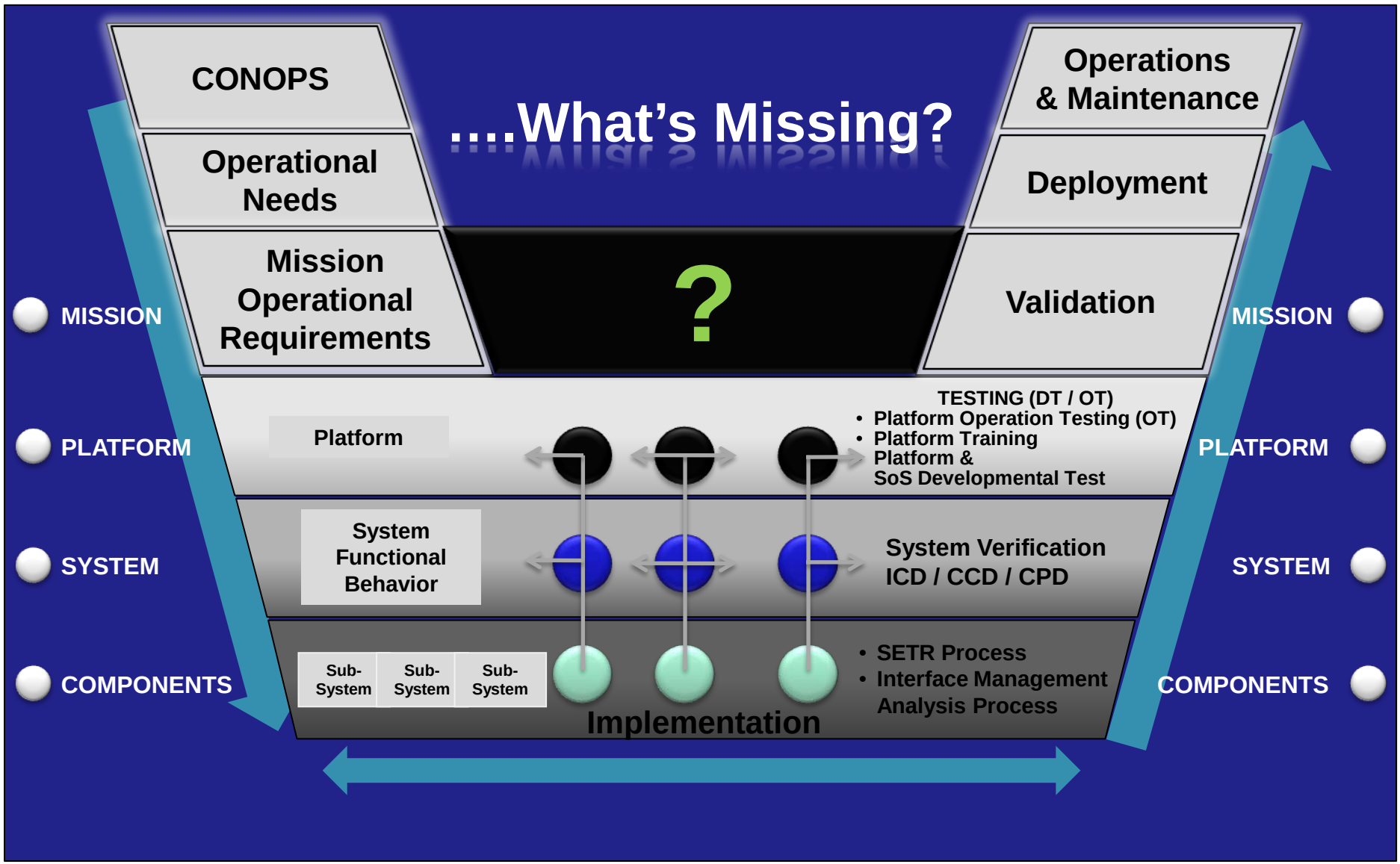
Mission Area System-of-Systems Engineering



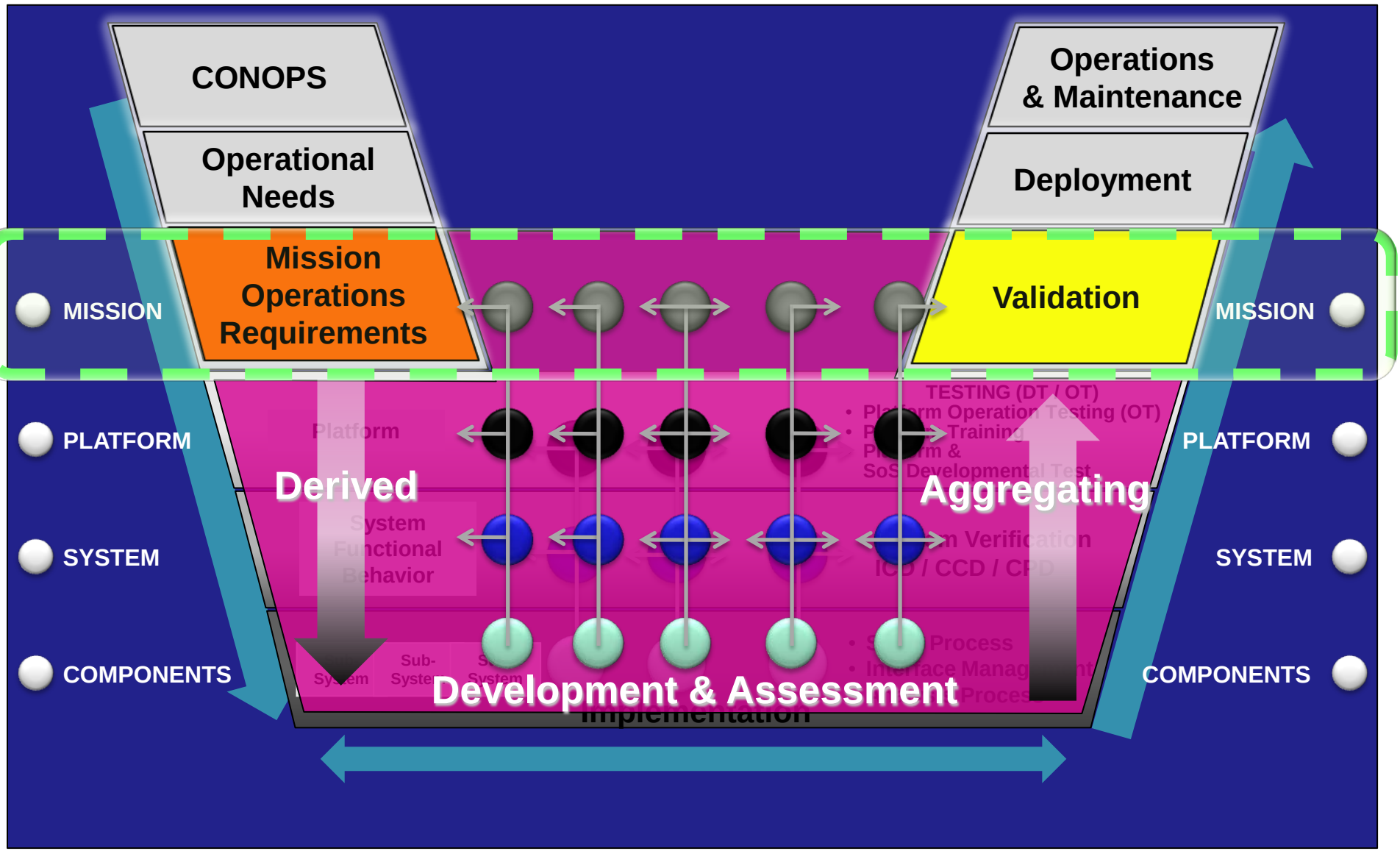
DoD 5000 Process



To Architect and Engineer the Naval Force…



Engineering at the Mission Level



RDA CHSENG Initiative

Net-Centric Integration & Interoperability

DON-Focused ISP Review

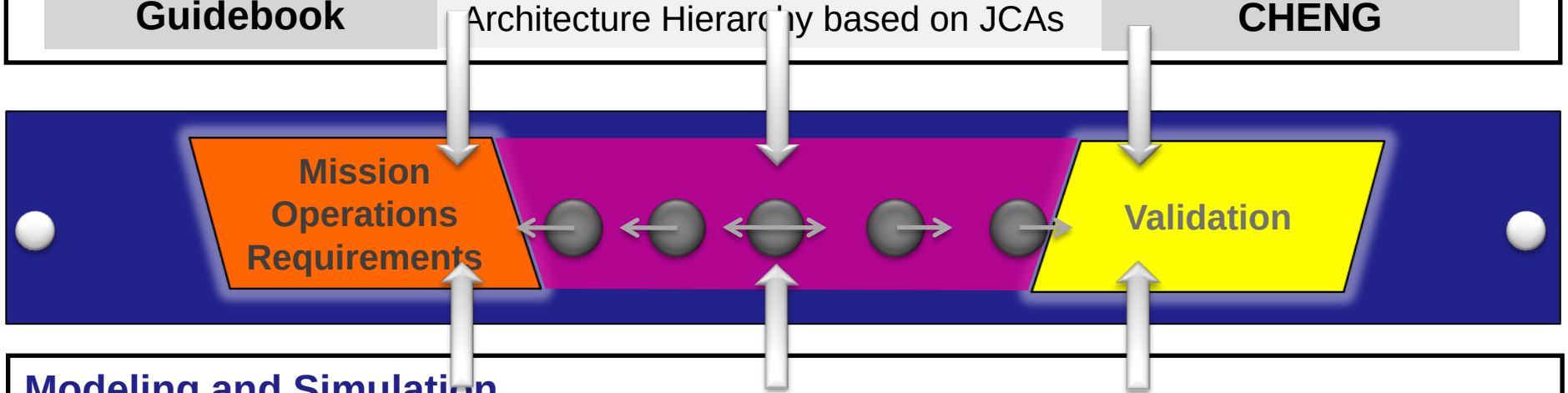
NR KPP Guidebook

DODAF Usability For Engineers

-DON Enterprise Architecture
-Architecture Common Data Elements
-Architecture Repository
-Architecture Hierarchy based on JCAs

Mission SoS Engineering Guidebook

Mission Area CHENG



Modeling and Simulation

- NMSO
- Large Scale Capability Assessment
- COTF

Analysis – Engineering – T&E Community Meta Data Strategy

Mission Threads

Mission Based Test Scripts

Use of Live Virtual Constructive Environment

Government Role as LSI

	Key Stakeholders	Gov't Role/ Responsibilities	Problem/ Challenge	Requirements	Strategy
Mission Force Focus	Joint Staff, FFC, Combatant CDR, OPNAV, RD&A	ID Capability Reqm'ts Provide SE rigor in Arch. & Reqm'ts Reqm'ts flowdown/ verification Reqm'ts Traceability	Ability to integrate mission capabilitities across muti missions, platforms, systems	Eng. mission capability in SoS arch., Allocating capability reqm'ts across PORs, SI reqm't in revieiws, T&E facilities	Clear Architectural Depictions Codify Mission Area Chief Engineers Test and Validation Facilities
SoS (Platform/Net Centric) Capability Focus	OPNAV, RD&A, PEO	Coord. SI across programs Decompose SI reqm'ts Validate sys performance Align evolving sys, tech,	Insufficient Govt Technical Insight Insufficient SI Requirements for optimum interoperability	Designs based on Govt defined Arch. Acq Strat., report SI activities at reviews, T&E facilities Contracting	Insight into sys development & SI implications Govt owns IP and sys arch. Access to SoS T&E Facilities Govt mechanism to track/report SI
System Functional Focus	PEO, SYSCOM	Integration approaches People, processes, facilities to maximize value across lifecycle	Knowledge to make SI decisions and lack of clear reqm'ts to maximize commonality	Processes, stds, specs & best Human Capital Capacity (TA) Contracting IP and Arch	Update technical processes (e.g. SETR) to address SI related information Intellectual Property Rights Assess Human Capital Capacity
Component End Item Focus	PM, SYSCOM, Industry	SI & Technical Authority People, processes, facilities Ensure industry compliance with SI reqm'ts	Insufficient Govt Insight	Facilities, Govt access to IP, Tech insight to execute "Smart Buyer" role, Hands on work	Contracting strategy and language to address IP lincreased Govt activity in sys arch & specs Govt Rapid Prototyping (sustain knowledge base)

- Largest payoff is at the highest level, must technically launch the project correctly to avoid costly course corrections later in development/support
- Technical discipline (competency) is required at each level
- Quality SI information is essential to delivering mission capability through multiple PORs

RDA CHSENG
Mission Engineer Accomplishments

- DODAF Usability (On-going)
  - NetCentric I&I Management Plan: Kevin Smith, RDA CHSENG
  - Architecture Common Data Elements: Mark Econie, SPAWAR
  - Architecture Repository: Mark Econie; Pat Roche, SPAWAR
  - DON Enterprise Architecture: Mike Jacobs, DoN CIO, Kevin Smith, RDA CHSENG
- DON-Level ISP Review Process (Exists): Dr. Cheryl Walton; RDA CHSENG
- NR KPP Guidebook (Fall 2009): Dr. Cheryl Walton; RDA CHSENG
- Aggregation of Documentation (Fall 2009): Dr. Cheryl Walton; RDA CHSENG
  - Consolidated ISPs.
  - Restructured IA certifications.
- Mission SoS Engineering Guidebook (v1 Exists / v2 Spring 2010): Melinda Reed, RDA CHSENG

RDA CHSENG Mission Engineer Accomplishments (continued)

- Mission Area CHENG (On-going): Kevin Smith, RDA CHSENG
  - Segment Reference Architecture development.
  - Segment-to-Solution Architecture alignment.
  - JCIDS matching to Segment Reference Architectures

- Predictors of Program Success (POPS) (v1 Exists): Mike Yang, RDA CHSENG
  - Net-Centric parameters incorporated.

- Analysis / Engineering / T&E Meta Data Strategy (On-Going): John Moore, NMSO

- Large Scale CPA / CPE (Fall 2009): Tony Devino, RDA CHSENG
  - CFFC pre-deployment evaluations.
  - OPTEVFOR evaluations.

- Government Role as LSI (Initial Exists / Follow-On): Joan Johnson, NAVAIR

RDA CHSENG
Mission Engineer Plans

- DODAF Usability (On-going)
  - NetCentric I&I Management Plan: Kevin Smith, RDA CHSENG
  - Institutionalize Architecture Common Data Elements: Mark Econie, SPAWAR
  - Exercise Architecture Repository: Mark Econie; Pat Roche, SPAWAR
  - Populate the Segment Reference Architectures in the DON Enterprise Architecture: Mike Jacobs, DoN CIO, Kevin Smith, RDA CHSENG
  - Align DON SRAs to USJFCOM, Army, Air Force mission architectures: Kevin Smith, RDA CHSENG

- DON-Level ISP Review Process (Exists): Dr. Cheryl Walton; RDA CHSENG
  - Extend DON-level reviews to programs at ACAT III and below.

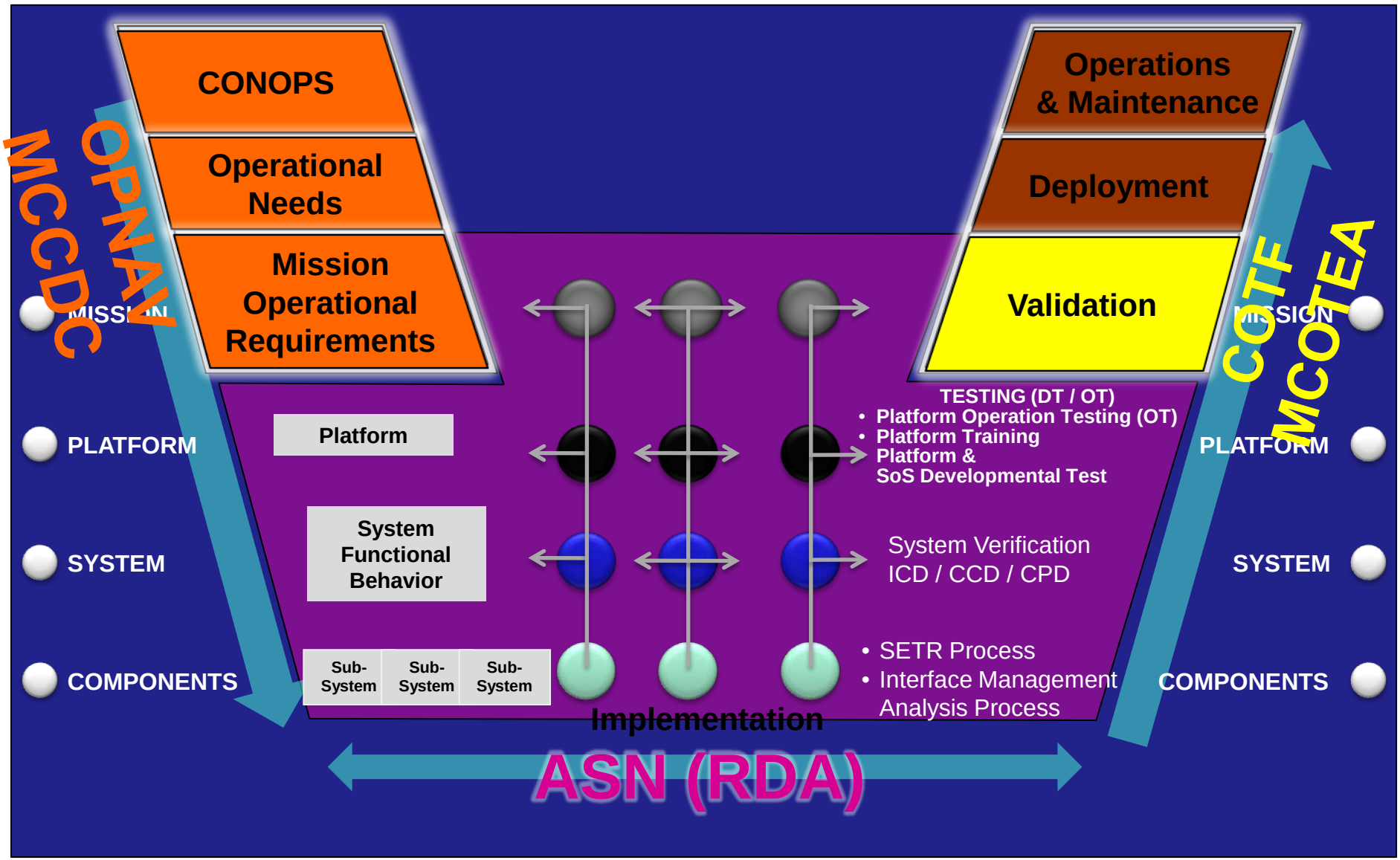
- NR KPP Guidebook (Fall 2009): Dr. Cheryl Walton; RDA CHSENG
  - Publish
  - Begin using OV data to quantify NR-KPP requirements at OPEVAL

- Aggregation of Documentation (Fall 2009): Dr. Cheryl Walton; RDA CHSENG Consolidated ISPs.
  - Implement platform-only ISPs

RDA CHSENG Mission Engineer Plans (continued)

- Mission Area CHENG (On-going): Kevin Smith, RDA CHSENG
  - Institutionalize MACE control of Segment Reference Architectures.
  - Continue Segment-to-Solution Architecture alignment during DON-level review of ISPs.
  - Institutionalize JCIDS matching to Segment Reference Architectures.
  - Export mission-level system-of-systems engineering to other Naval management processes:
    - Campaign and mission analyses.
    - Programming and Budgeting
- Predictors of Program Success (POPS) (v1 Exists): Mike Yang, RDA CHSENG
  - Update based on lesson learned.
- Analysis / Engineering / T&E Meta Data Strategy (On-Going): John Moore, NMSO
- Large Scale CPA / CPE (Fall 2009): Tony Devino, RDA CHSENG
  - Institutionalize CFFC pre-deployment evaluations.
  - Conduct initial OPTEVFOR system-of-system evaluation.

Summary


CONOPS
Operational Needs
Mission Operational Requirements
Operations & Maintenance
Deployment
Validation
OPNAV
MCCDC
COTF
MCOTEA
MISSION
PLATFORM
SYSTEM
COMPONENTS
Platform
System Functional Behavior
Sub-System
Sub-System
Sub-System
TESTING (DT / OT)
• Platform Operation Testing (OT)
• Platform Training
Platform &
SoS Developmental Test
System Verification
ICD / CCD / CPD
• SETR Process
• Interface Management Analysis Process
Implementation
ASN (RDA)