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Illustrating the CONOPs Continuum and its Relationship to the Acquisition Lifecycle

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Overview

- Motivation for research
- Research goals
- Methodology
- Discussion
  - CONOPs definition
  - Perceptions of CONOPs and barriers to usage
  - Integrating many CONOPs documents
  - Alignment of CONOPs
  - Evolving CONOPs
- Summary

Motivation

- As noted by a recent FAA sponsored study, cost, schedule and performance breeches continue to plague large scale programs
- The FAA study noted the importance of the CONOPs in avoiding programmatic pitfalls

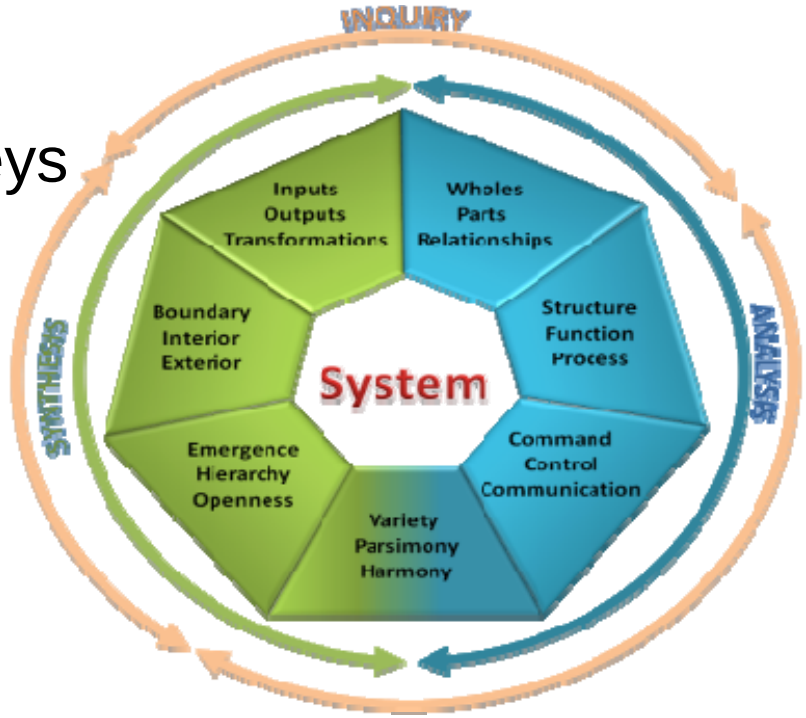
"…one of the most significant artifacts is the creation of a CONOPs."
Once created, there is a need to have
"…alignment between the evolving CONOPs, the enterprise architecture, and the governance system…"(Turner et. al., 2009, p 32).

Research Goals

- Assess current use of CONOPs
- Identify any disconnect between use and perceived usefulness
- Assess current alignment of CONOPs to DOD governance and EA processes
- Explore maturity phases of CONOPs

Methodology

- Literature review
  - DoD instructions and manuals
  - Industry standards
  - Websites
  - Academic papers and surveys
- Analysis
  - 4-way data analysis of:
    - usage, terms, purposes, and relationships
- Systems thinking
  - Conceptagon application



(Edson, 2008)

A CONOPs Is....

- IEEE Std 1362-1998
  - A user-oriented document that describes system characteristics for a proposed system from the users' viewpoint.
- Joint Pub 1-02
  - A verbal or graphic statement that clearly and concisely expresses what the joint force commander intends to accomplish and how it will be done using available resources... designed to give an overall picture of the operation.
- CJCSI 3010.02B
  - How a joint force commander may organize and employ forces in the near term (now through 7 years into the future) in order to solve a current or emerging military problem…CONOPs provide the operational context needed to examine and validate current

Perceptions of CONOPs Use

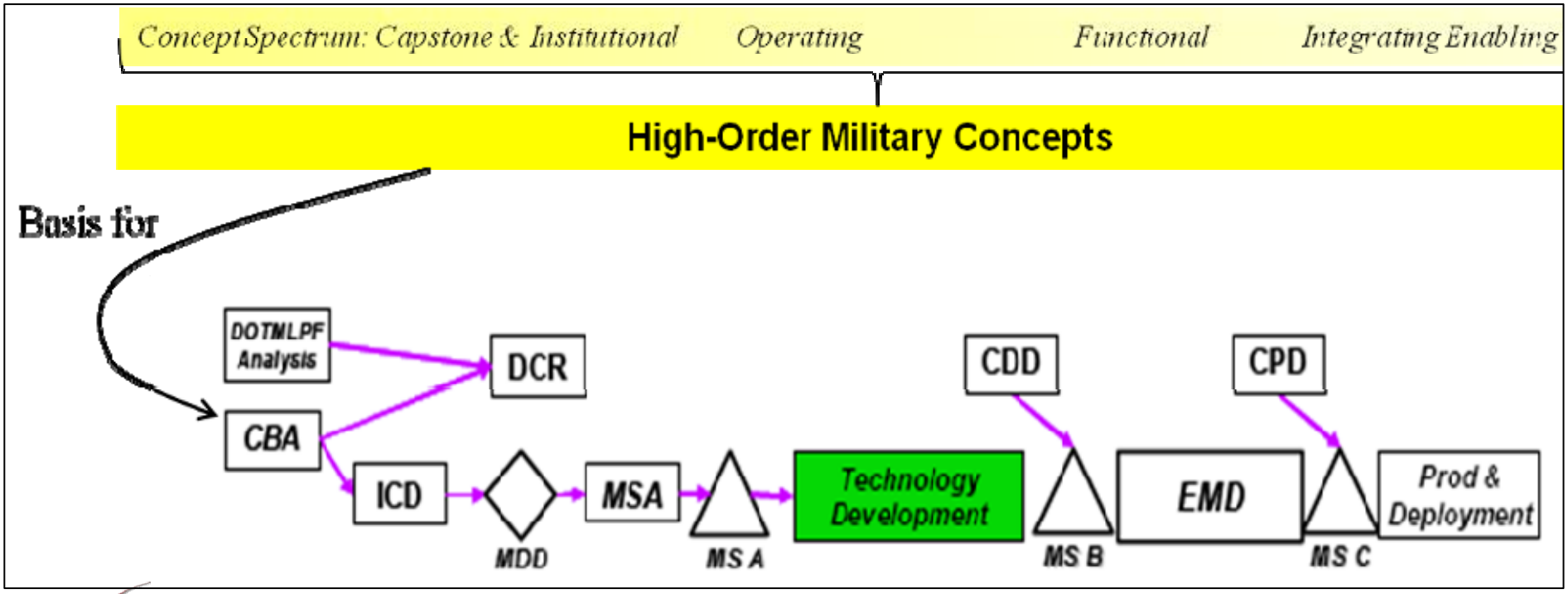
- Government community survey
  - Respondents indicated CONOPs as
    - "Critical" to system success and "Underutilized"
- Industry community survey (Roberts, 2008)
  - 108 respondents primarily engineers
  - 100% of respondents said they found a CONOPs useful
  - 1/3 of programs surveyed did not have a CONOPs
  - 18% of CONOPs generated after requirements

Barriers to Effective CONOPs Use

- Disconnect: perceived importance vs. use
- Research indicated 4 related causes of the disconnect
  - Definition and purpose
  - Targeted audience
  - Timing and placement in the acquisition development lifecycle
  - Comprehensive view and consistent involvement by stakeholders

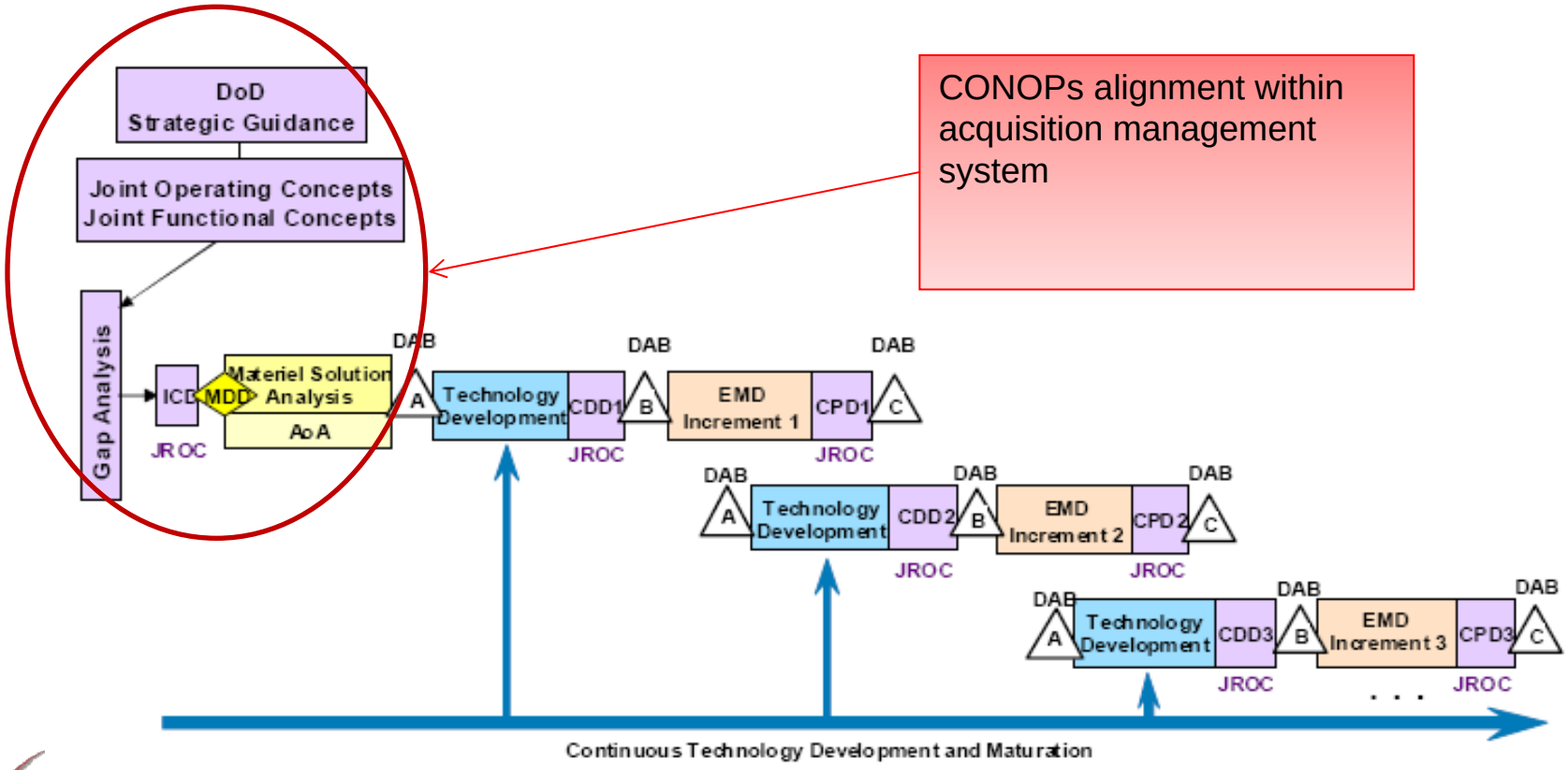
Relationship of CONOPs to Acquisition

- JCIDS and DoD, "CONOPs" usually refers to a military concept



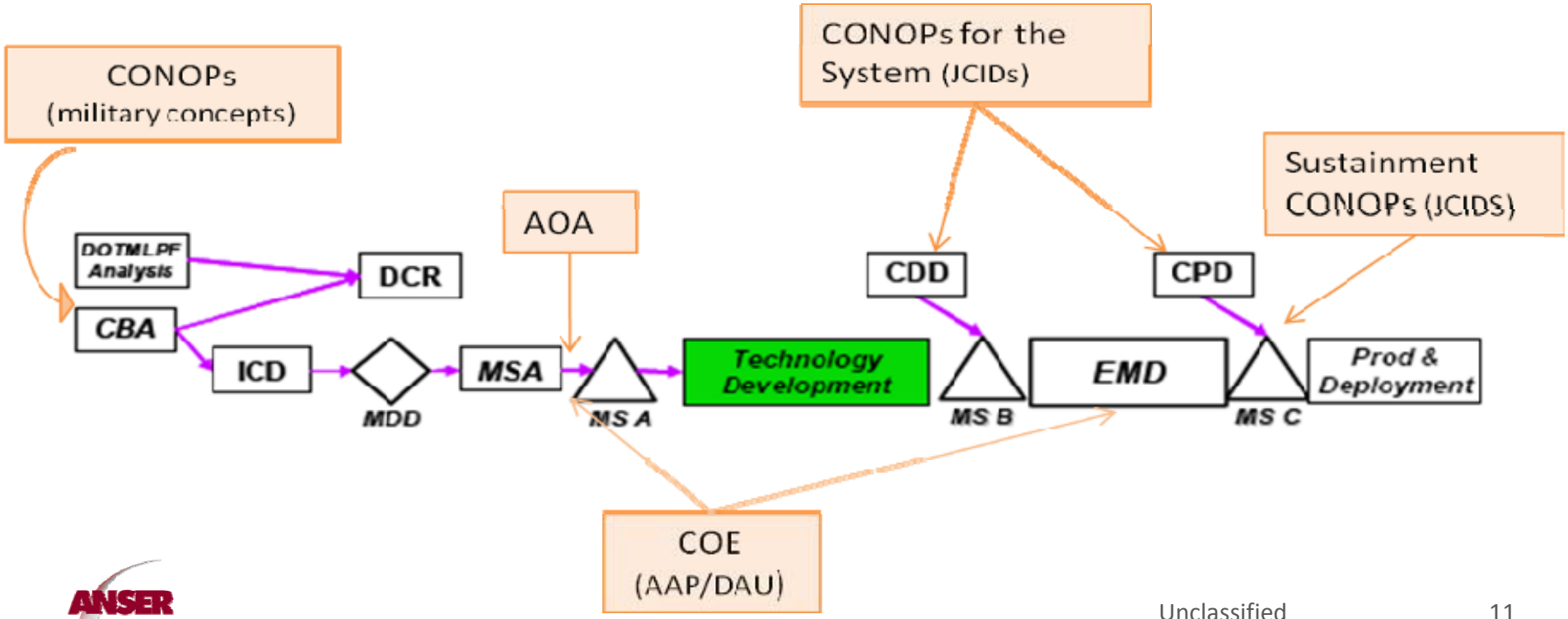
Relationship of CONOPs to Acquisition

- DoD 5000.02
  - Validated assessment of the relationship of Military Concepts
  - Did not specify relationship of system level CONOPs



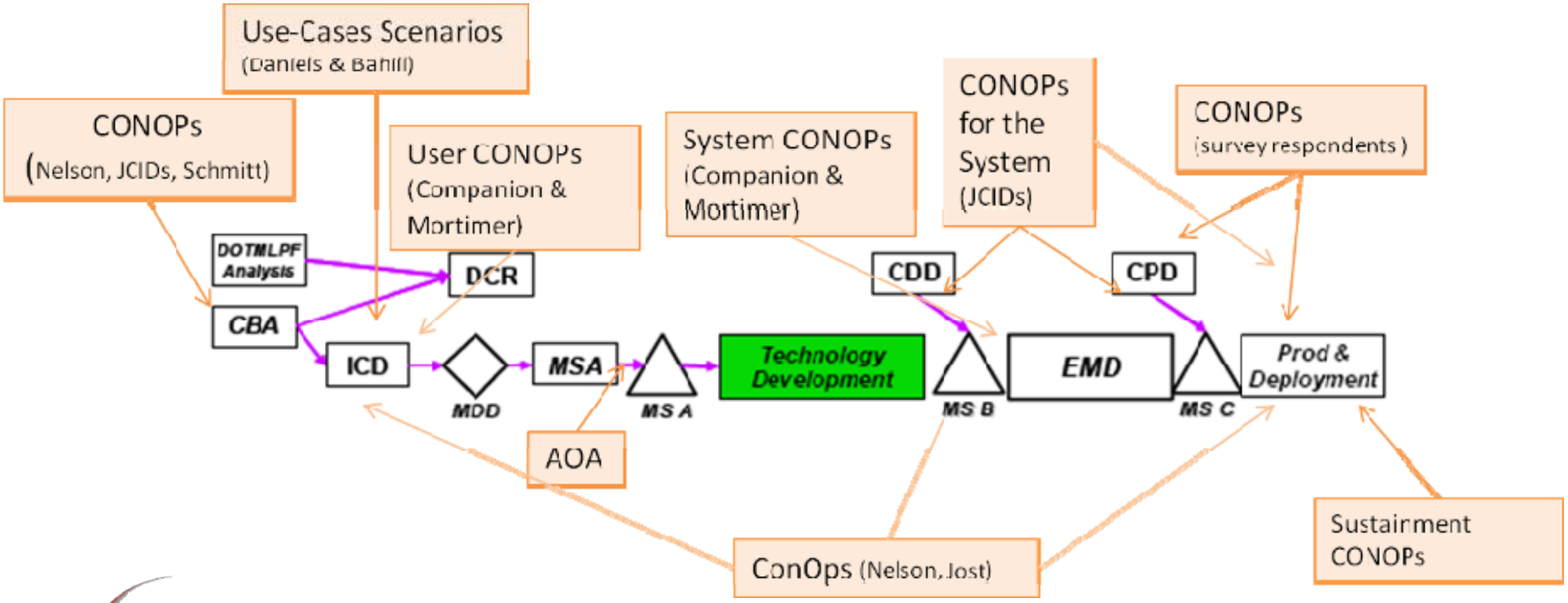
Relationship of CONOPs to Acquisition

- DoD literature review described several more CONOPs related documents
  - These were plotted on the existing enterprise architecture/ governance framework

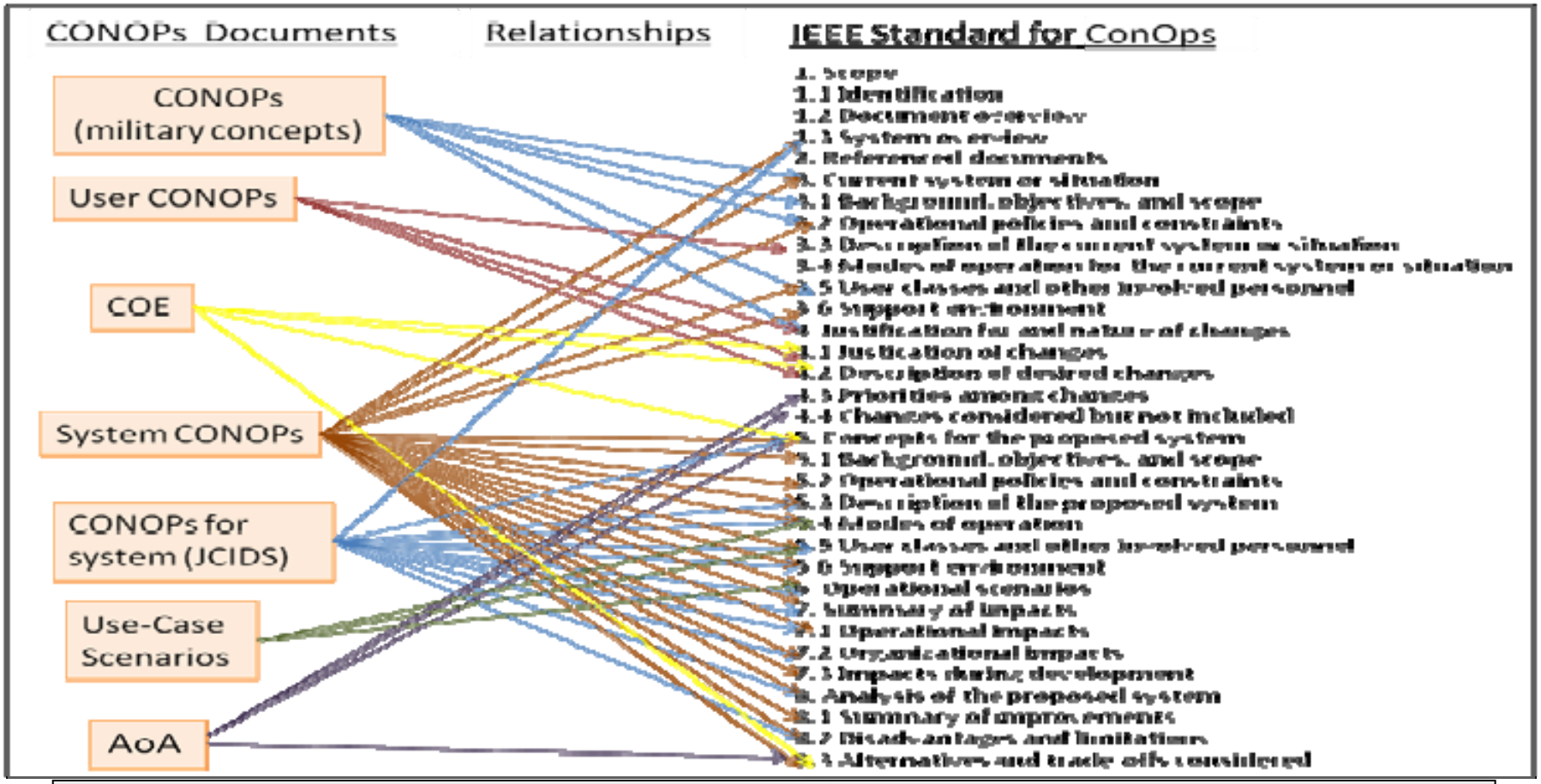


Relationship of CONOPs to Acquisition

- Plot was increased to include documents referenced in literature
  - Substantial increase in documents spanning lifecycle



Integration of Individual Inputs and IEEE's standard

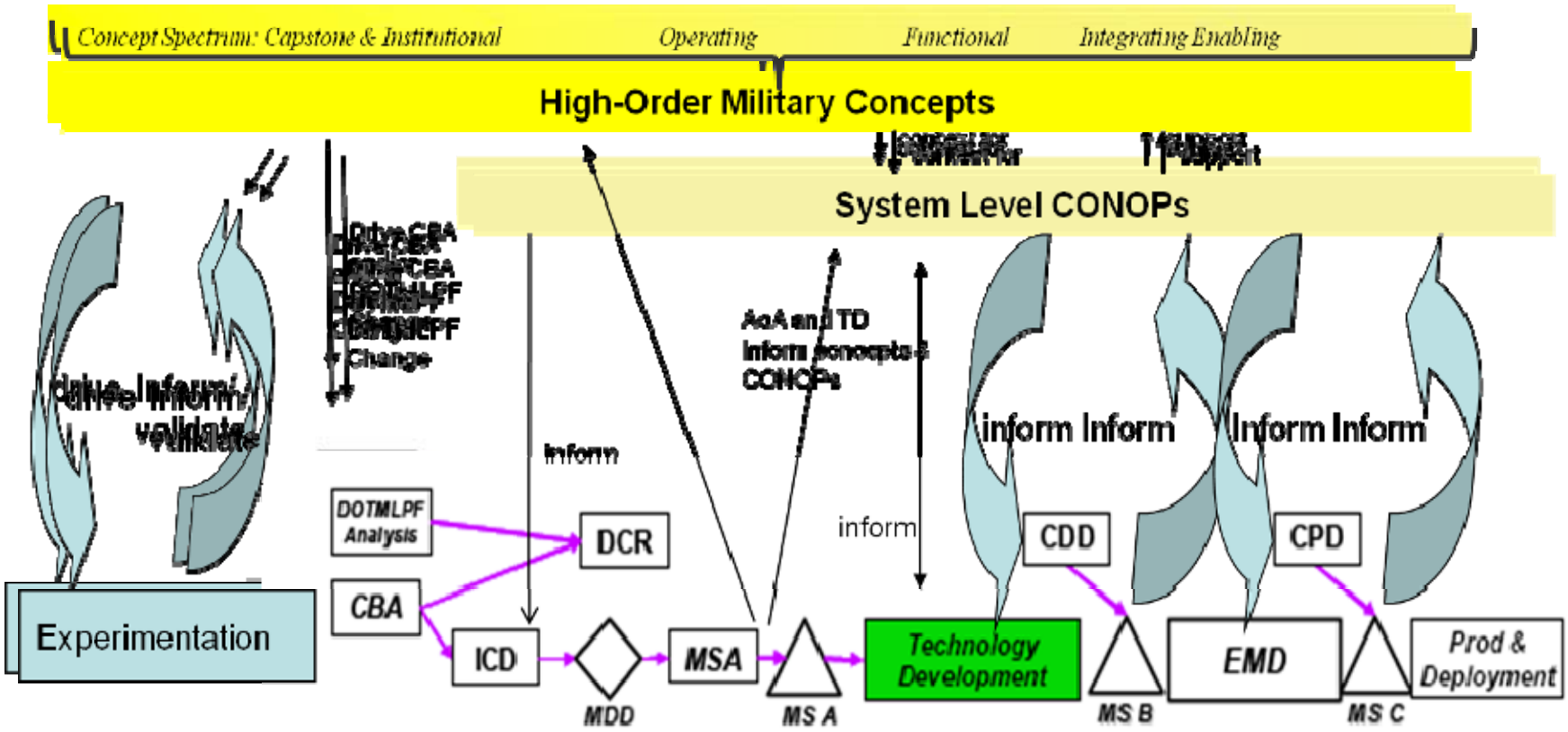


"The main reason we overlook the central role of the CONOP…is that we give different names to the same thing at different scales"(Nelson, 2007)

Value of Integrated CONOPs

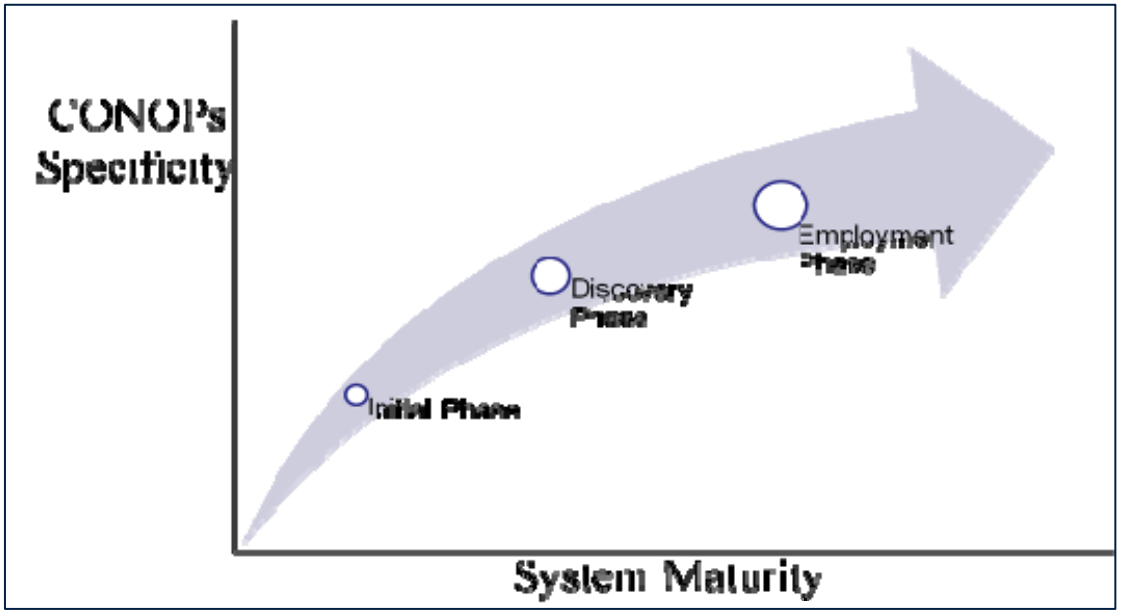
- Traceability
  - "Key tool for ensuring that the system developed fully meets the needs and requirements defined by the user" (IEEE, 2008, para, 4.2, p., 38)
  - Integration resolves, or mitigates, potentially conflicting views by creating a "one stop" complete view of the problem, the proposed solution, the user community, and the intended uses.
- Continuity
  - Key tool for stakeholder involvement and communication
  - Retains comprehensive view of stakeholder input

Alignment of the Integrated CONOPs



CONOPs Maturity Phases

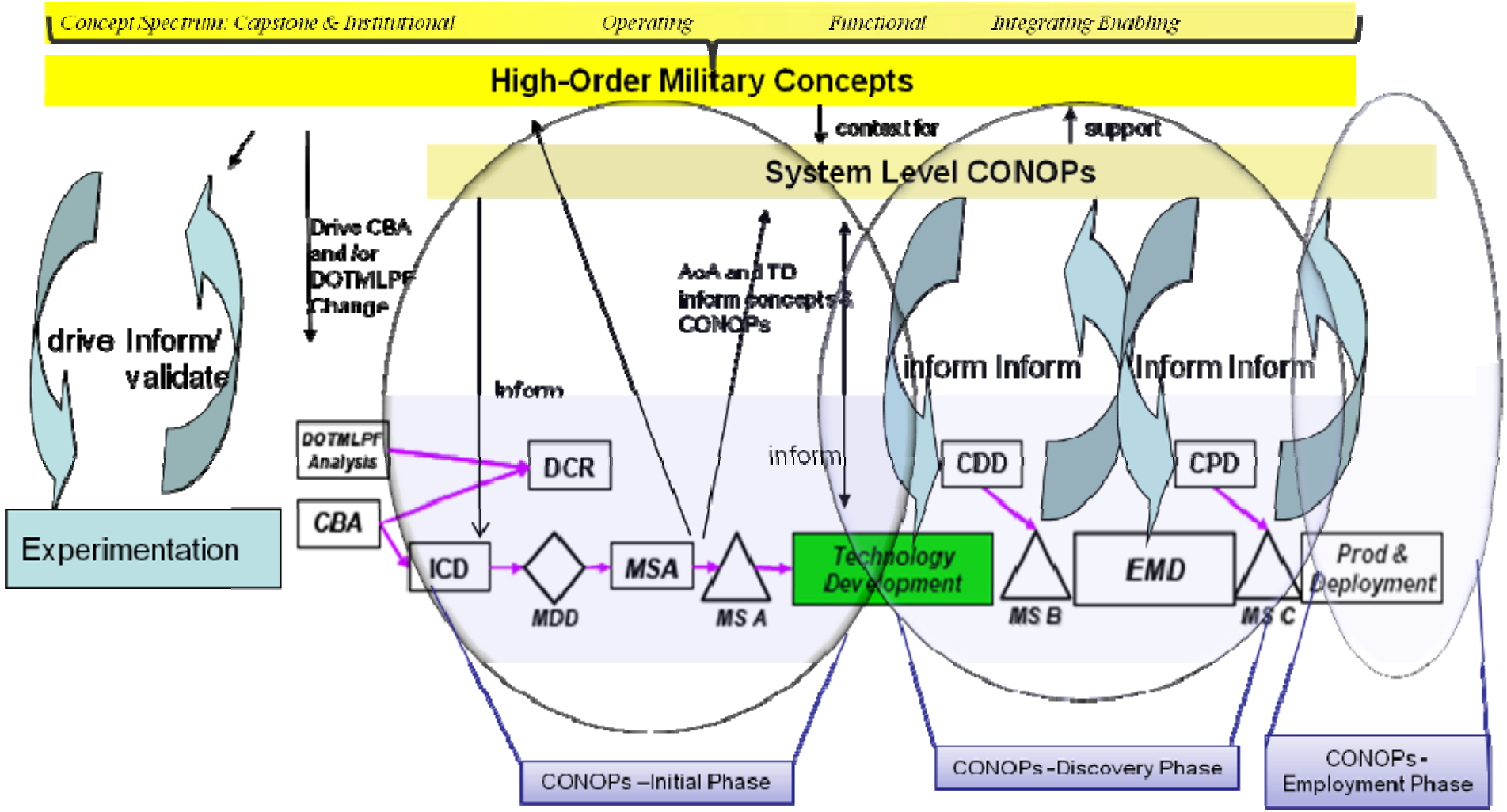
- Alignment of CONOPs, EA, and governance systems, brought to light specific phases of CONOPs maturity
  - Black box to white box description
- CONOPs matures in concert with system
  - Maturity phases align with major phases of lifecycle



CONOPs Maturity Phases

- Initial Phase
  - Describes the system as a ‘black box’ and in its most ideal form.
  - Guides development of ICD requirements
- Discovery Phase
  - Informed by the Technology Development & EMD
  - Basis for requirements captured in the CDD & CPD
- Employment Phase
  - Informed by user feedback
  - Most specific version of the CONOPs

CONOPs Maturity Phases



Summary

- Several barriers that prevent effective CONOPs usage
  - Definition and purpose, intended audience, placement in acquisition cycle, and lack of a comprehensive view
- CONOPs, even if in a broken form are being used across the acquisition lifecycle
  - An opportunity exists to integrate these documents in an end-to-end CONOPs
- CONOPs mature with the system

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