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What is Different for COTS-Based Systems?

For GSAW Breakout Session –
Process Mismatch with COTS-Based Systems:
Problems and Solutions

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Breakout Outline

Mismatches in processes for developing and negotiating requirements

- What's different about COTS-based systems?
- Discuss a sample commercial approach
- Discuss a traditional DoD approach
- Form recommendations for new and changed DoD processes
- (*discuss mismatches in tracking and managing requirements)

(break)

Mismatches in processes for creating and validating architectures

- What's different about COTS-based systems?
- Discuss a sample commercial approach
- Discuss a traditional DoD approach
- Form recommendations for new and changed DoD processes
- (*discuss mismatches in maintaining and evolving architectures)

* as time allows

What is a COTS-Based System?

A **COTS product** is one that is …

- Sold, leased, or licensed to the general public
- Offered by a vendor trying to profit from it
- Is supported and evolved by the vendor, who retains intellectual property rights
- Available in multiple, identical copies
- Used without modification of its internals

A **COTS-based system** is one that …

- Uses one or more off-the-shelf components from one or more suppliers plus any needed custom components
- Is integrated to achieve new or expanded system functionality

Reuse assets COTS products Legacy Custom

???

Components

COTS-Based System
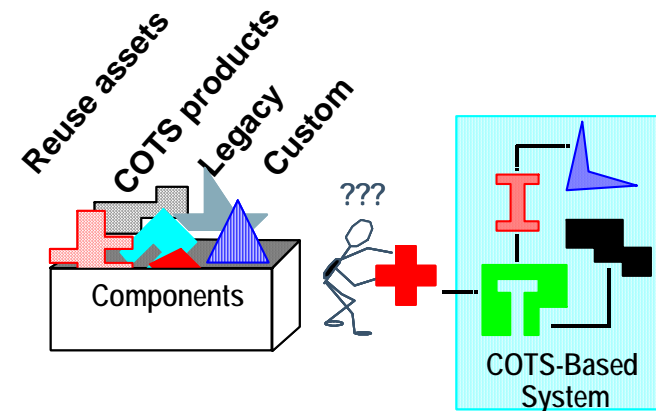
What Makes COTS Challenging?

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What your customers want ⟷ What you can buy

Mismatch is likely

- COTS products designed to be used "as is" to meet general operational processes; not a specific organization's
- Each COTS product presumes an architecture

Product visibility is limited

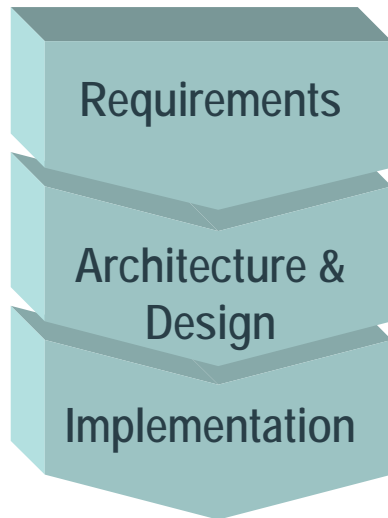- Technical behavior often must be discovered indirectly

Marketplace is volatile

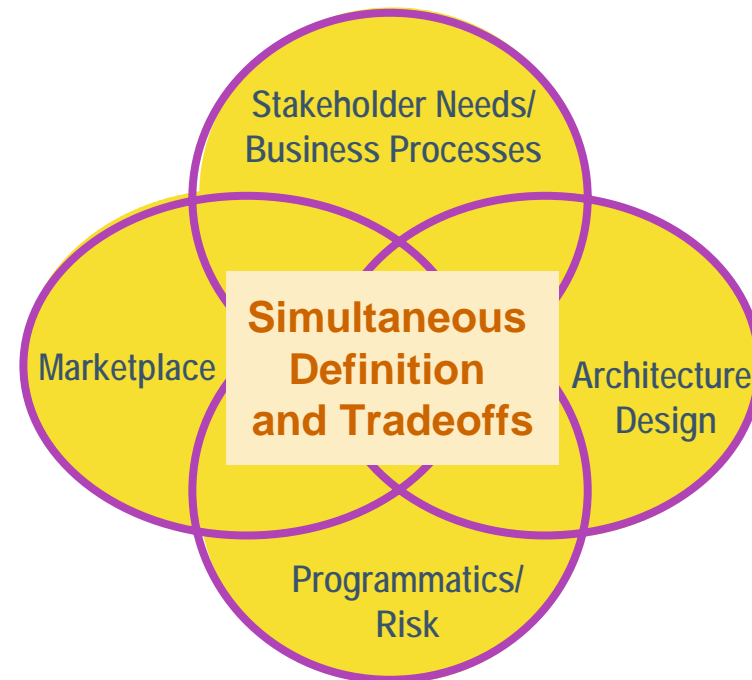- Commercial market place drives COTS product definition and evolution

Fundamental Change In Approach

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Traditional Engineering Approach

- Requirements
- Architecture & Design
- Implementation

Requirements-driven

Required COTS Approach

Stakeholder Needs/ Business Processes

Marketplace

Simultaneous Definition and Tradeoffs

Architecture Design

Programmatics/ Risk

Negotiation-driven

Requirements Process Challenges

➢ How do you specify requirements so they are flexible enough to leverage available and projected COTS products?

➢ How do you get the right set of stakeholders identify and agree upon the critical set of requirements and their priorities?

➢ How does knowledge of COTS product behavior and its implications on user processes affect definition of requirements?

➢ How are requirements renegotiated as COTS products and the marketplace continue to change?

Architecture Process Challenges

➢ How is knowledge of behavior and linkage among COTS products and other system components understood and described?

➢ How will the architectural implications of each COTS product release affect any incorporation decision?

➢ How will alternative architectures considered in definition of requirements?

➢ How are potential drivers of change identified and accommodated in architecture definition?

➢ How is the architecture defined and maintained so that it evolves as the marketplace evolves until the system is retired?