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## Standardized Documentation for Verification, Validation and Accreditation / Paper 08F-SIW-003

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Marcy; Blais, Curtis

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Paper 08F-SIW-003, Fall Simulation Interoperability Workshop, Simulation  
Interoperability Standards Organization, Orlando, FL  
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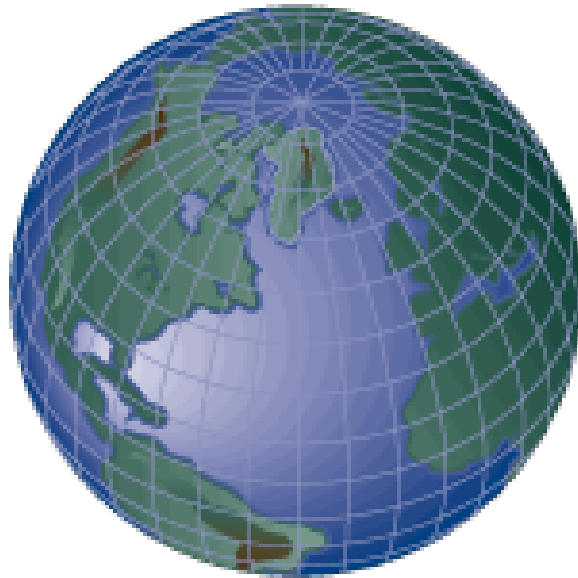


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# DoD M&S Project: Standardized Documentation for Verification, Validation, and Accreditation



Project Management Team

# Outline

- Introduction
- Project Management
- Policy, Guidance & Standards
- Taxonomy & Metadata
- Architecture & Software Development
- Related efforts
- Summary

# Introduction

- Project title: Standardized Documentation for Verification, Validation, and Accreditation (VV&A)
- Sponsor: Department of Defense (DoD) Modeling and Simulation Steering Committee (M&S SC)
- Oversight: Acquisition Community
- Purpose: Support DoD- and Service-level Communities with a tool to produce standardized VV&A documentation and with VV&A XML schemas that meet net-centric architecture requirements within the Global Information Grid (GIG) enterprise

# Project Scope

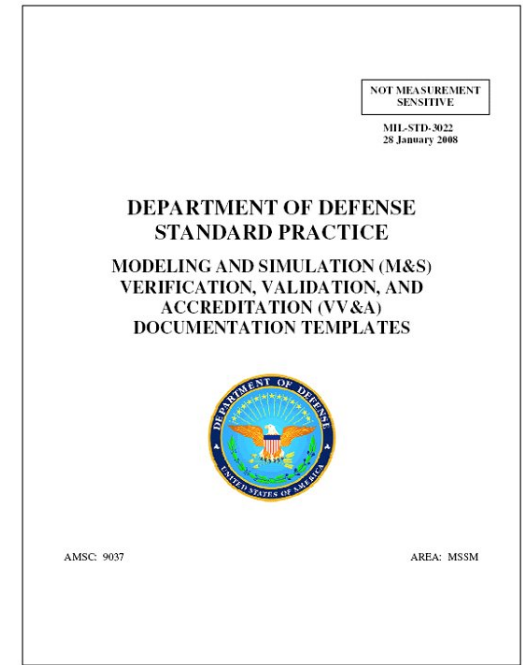
- Three major tasks and associated deliverables:
  - recommend updates to associated policy, guidance, and standards documents
  - design, describe, and register VV&A XML schemas
  - design, develop, test and deploy the DoD VV&A Documentation Tool (DVDT)

# DVDT

- Automates production of VV&A documentation in compliance with MIL-STD-3022
- Complies with the DoD M&S Community of Interest Discovery Metadata Specification (MSC DMS)
  - Enables search and discovery of information about VV&A documents via the GIG enterprise
- Helps organizations
  - Produce documents more efficiently by automatically populating common elements of a document with information entered by the producer when producing an earlier document (i.e., sharing common information across the documents)
  - Organize the information in the documents
  - Output documents in a common format
  - Make metadata about VV&A documents available to M&S consumers across the GIG enterprise

# MIL-STD-3022

- **2005-2006:** DoD-led Tri-Service VV&A Templates Tiger Team developed templates for four core VV&A documents
- **2007:** Processed through DoD M&S management system and Defense Standardization Program
- **2008:** Approved as a DoD Standard Practice with four associated Data Item Descriptions (DIDs)
  - DI-MSSM-81750 DoD M&S Accreditation Plan
  - DI-MSSM-81751 DoD M&S V&V Plan
  - DI-MSSM-81752 DoD M&S V&V Report
  - DI-MSSM-81753 DoD M&S Accreditation Report
- MIL-STD-3022 may be cited as a solicitation requirement. Applicable DIDs must be listed on the Contract Data Requirements List when it is necessary to obtain VV&A documents.
- Available from Acquisition Streamlining and Standardization Information System (ASSIST) - <http://assist.daps.dla.mil/>



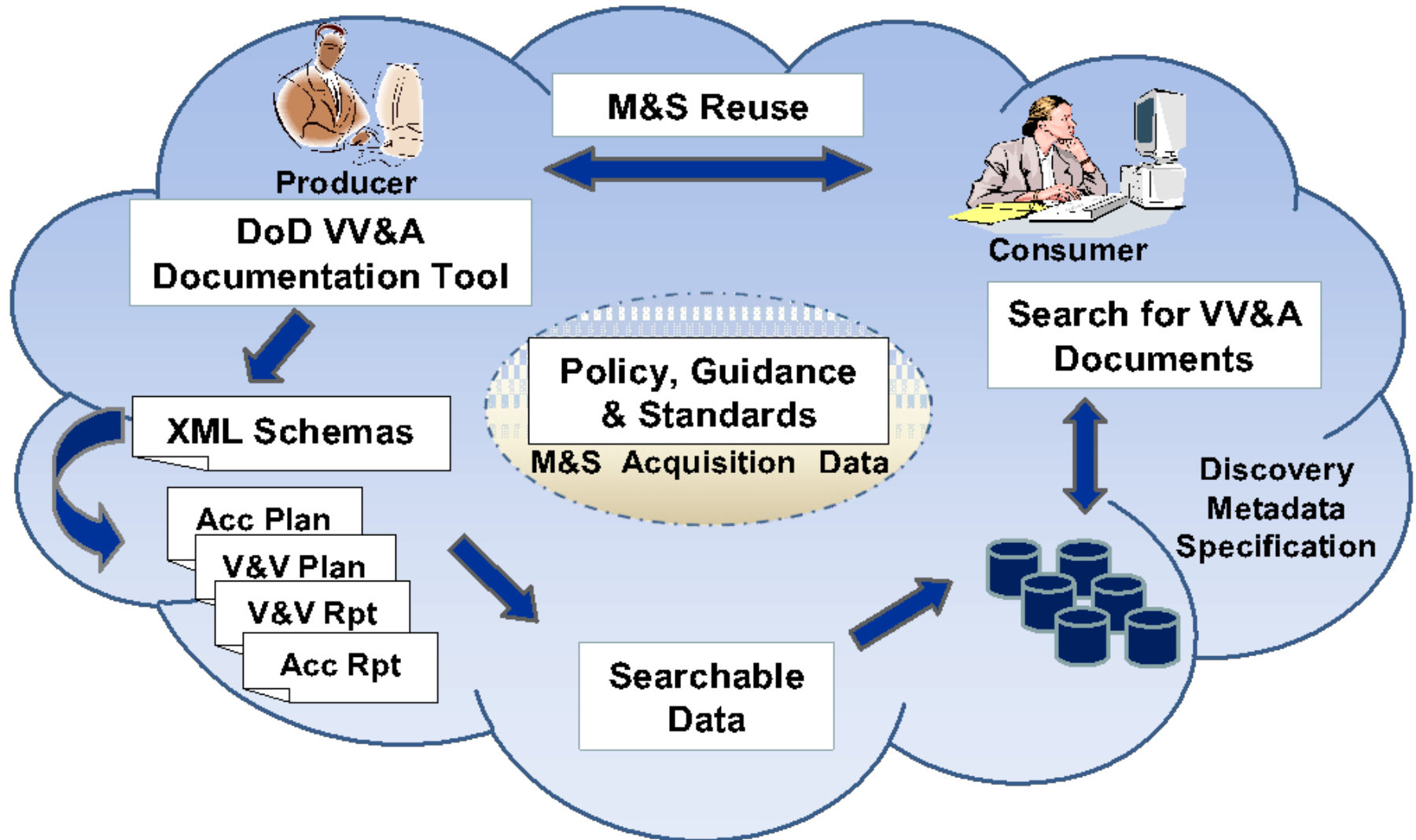
**DVDT automates standard templates enabling sharing of VV&A information across Global Information Grid (GIG) enterprise**

# Project Management

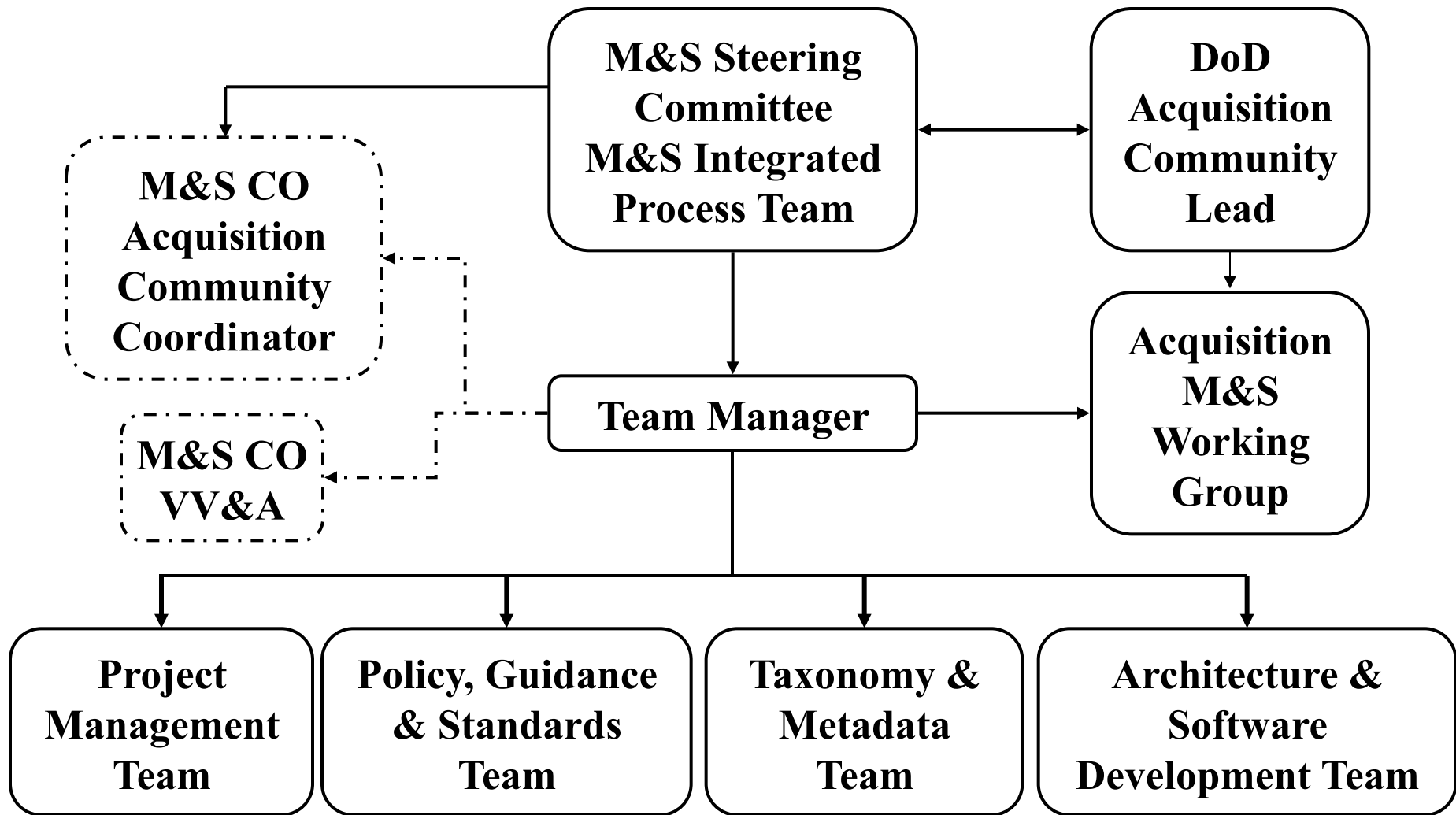
- Concept of Operations
- Organization
- Configuration management



# Project Concept of Operations



# Project Organization



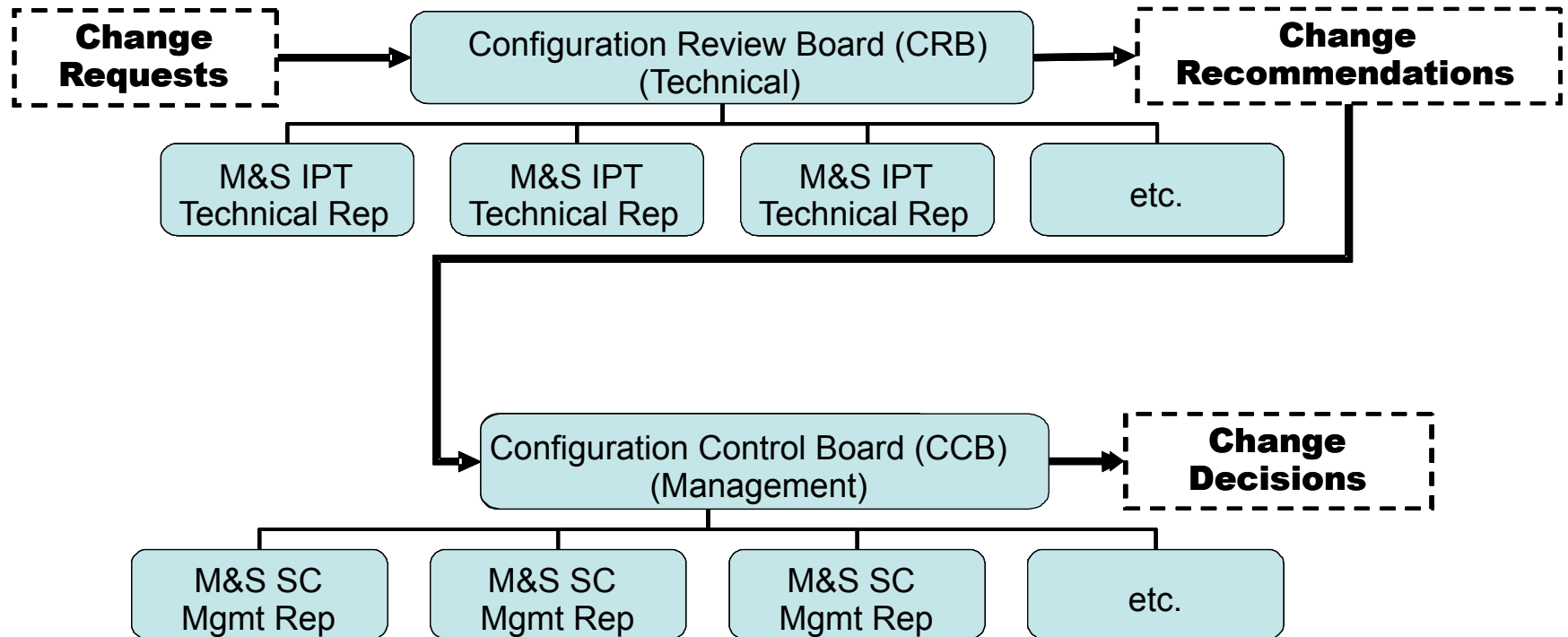
# Configuration Management

- Proposed structure & workflow
- Proposed control process

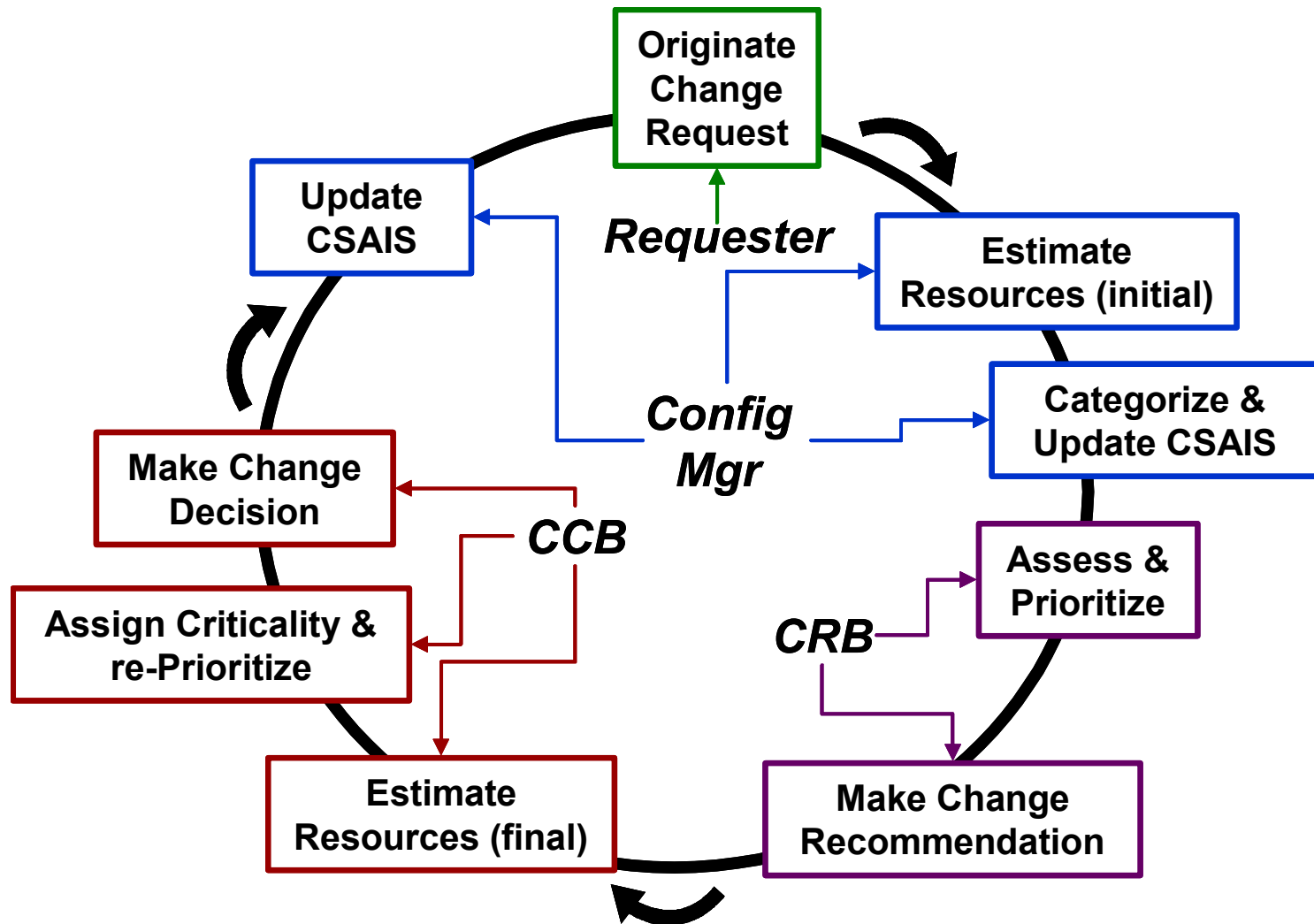
**NOTE: At the time of submission, the configuration management plan and concept only were proposed and had not yet been processed for final approval. Information on this slide and the next two slides is still draft.**



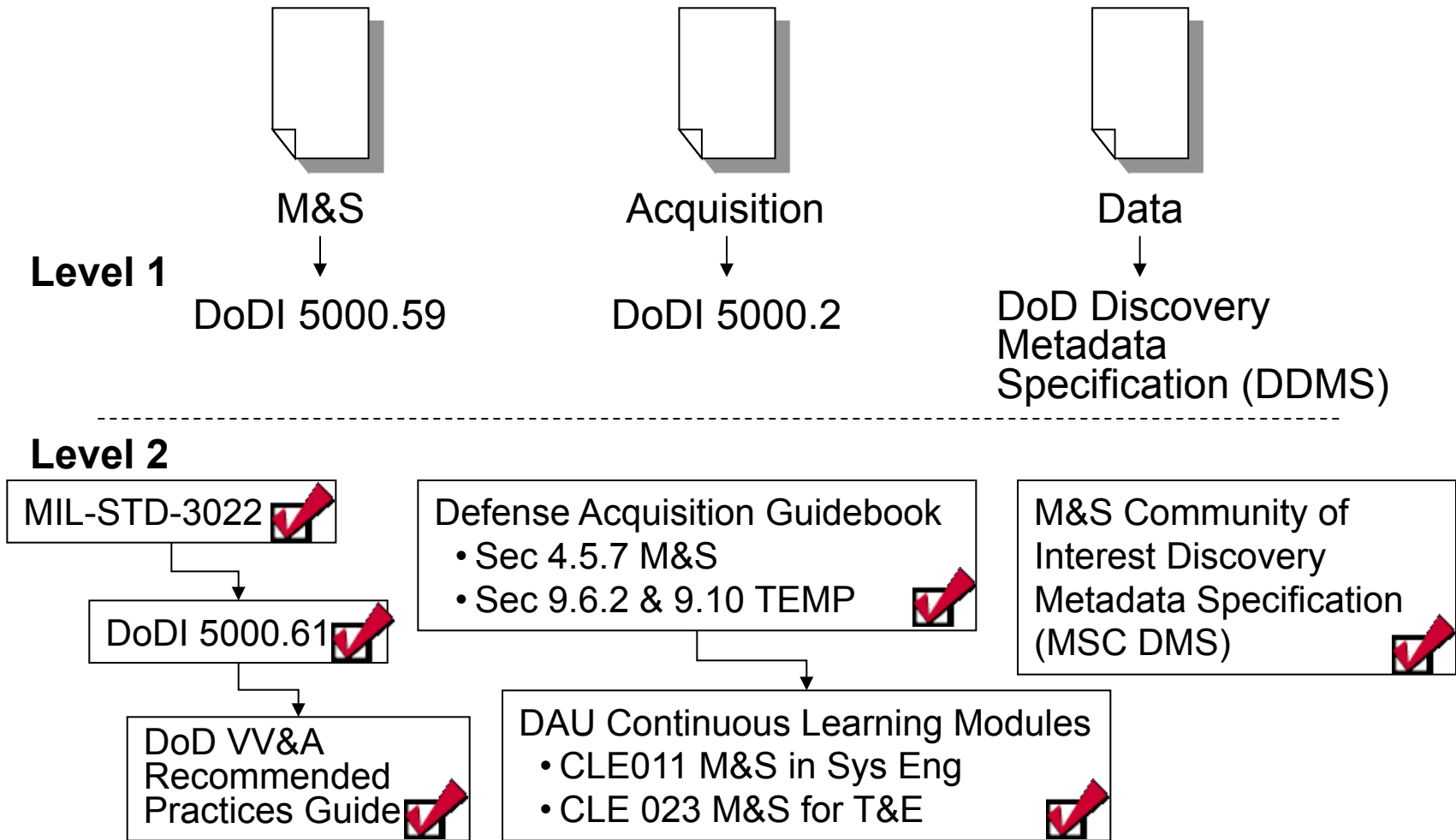
# Proposed Configuration Management Structure and Workflow



# Proposed Change Process



# Policy, Guidance & Standards



# Taxonomy & Metadata

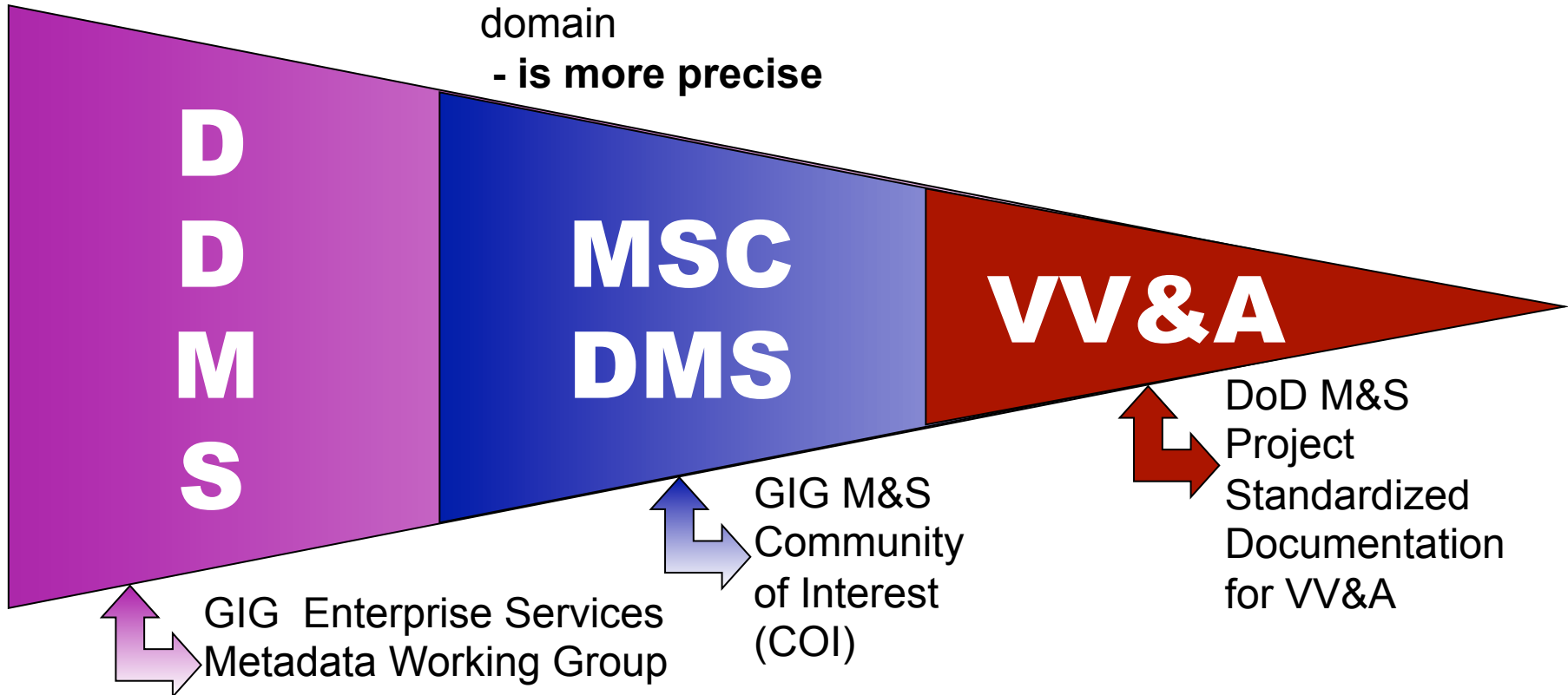
- Discovery metadata
- XML schema documents
- DoD Metadata Registry
- Taxonomy and Ontology

# Discovery Metadata

DoD Discovery Metadata Specification (DDMS) describes DoD resources  
**- is very broad**

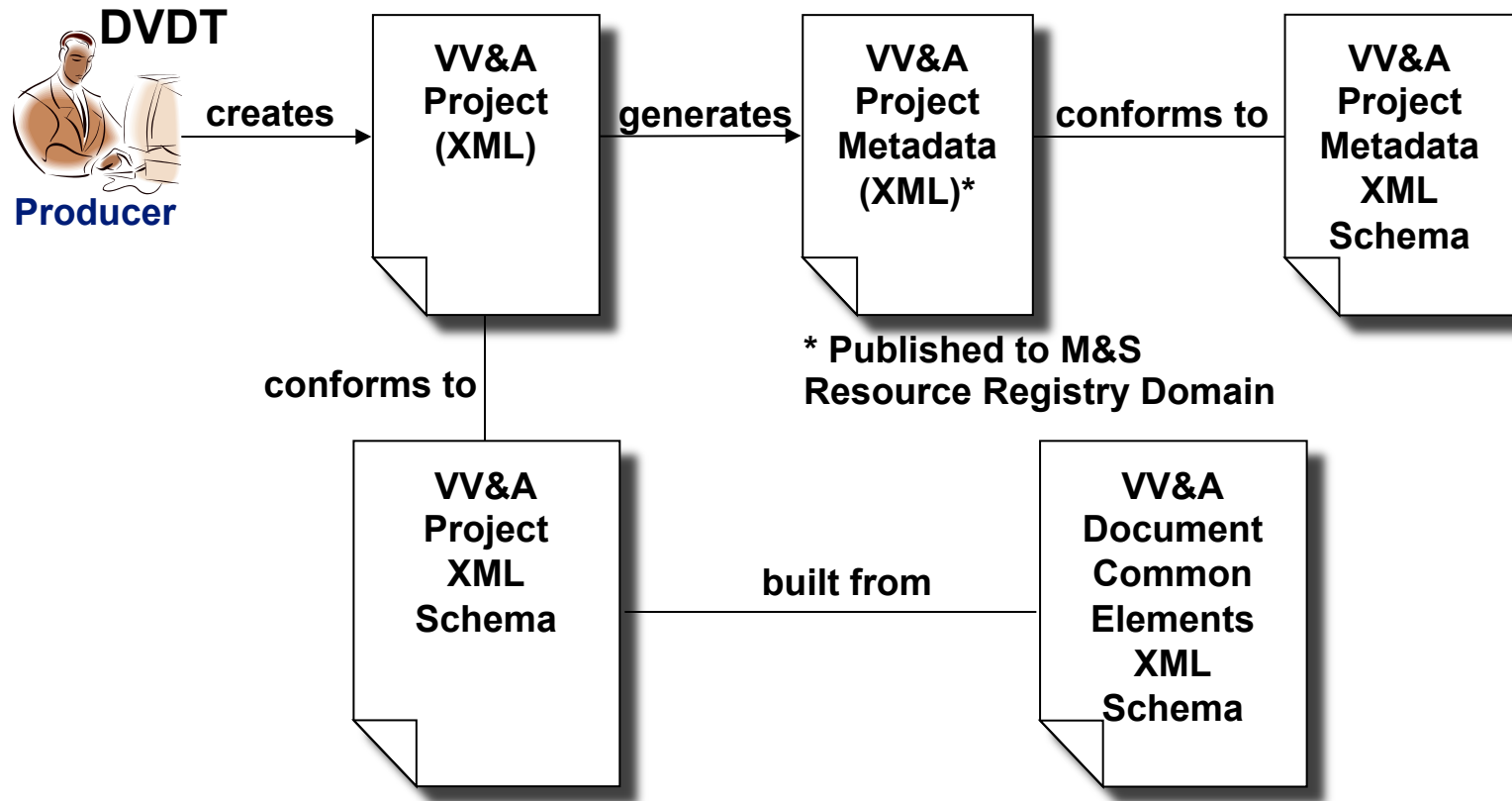
M&S Community of Interest Discovery Metadata Specification (MSC DMS) provides more detail to describe resources in the M&S domain  
**- is more precise**

VV&A metadata describes VV&A resources  
**- is most precise**

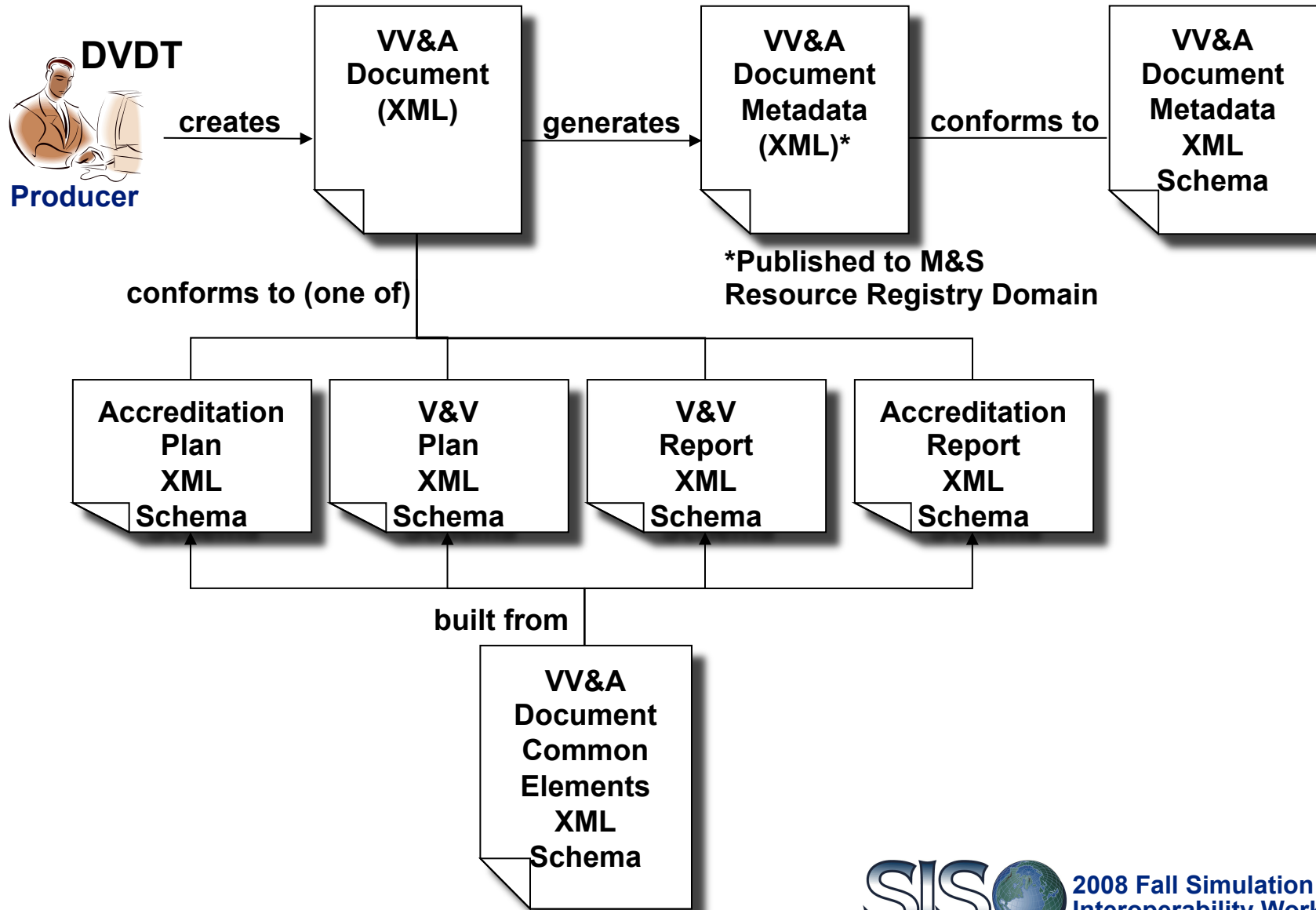




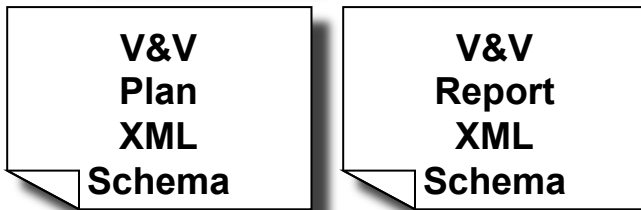
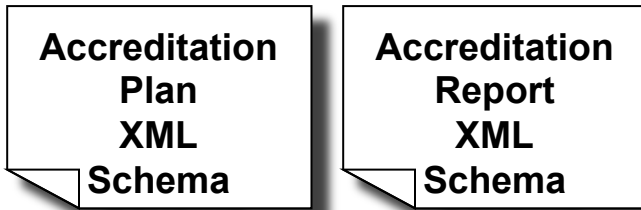
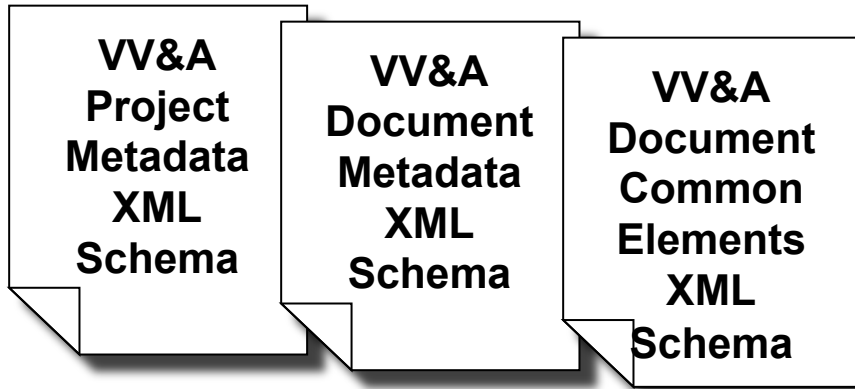
# XML Schema Documents (Project-level)



# XML Schema Documents (Document-level)



# DoD Metadata Registry



DoD Metadata Registry and metadata registration process established to collect, store, and disseminate structural metadata information resources, e.g.:

- schemas
- data elements
- attributes
- document type definitions
- style-sheets
- data structures

The project's XML products will be registered and available for use by industry and government.



<http://metadata.dod.mil>

# Taxonomy & Ontology

**tax·on·o·my –noun**

- 1. the science or technique of classification.**
- 2. division into ordered groups or categories.**

**on·tol·o·gy - noun**

- 1. a rigorous and exhaustive organization of some knowledge domain that is usually hierarchical and contains all the relevant entities and their relations.**
- 2. a formal representation of a set of concepts within a domain and the relationships between those concepts.**

The project is also designing taxonomic and ontological descriptions of VV&A products, processes, and evidentiary artifacts to investigate and demonstrate enhanced search, matching of resources to consumer needs, and machine-derived inferences.

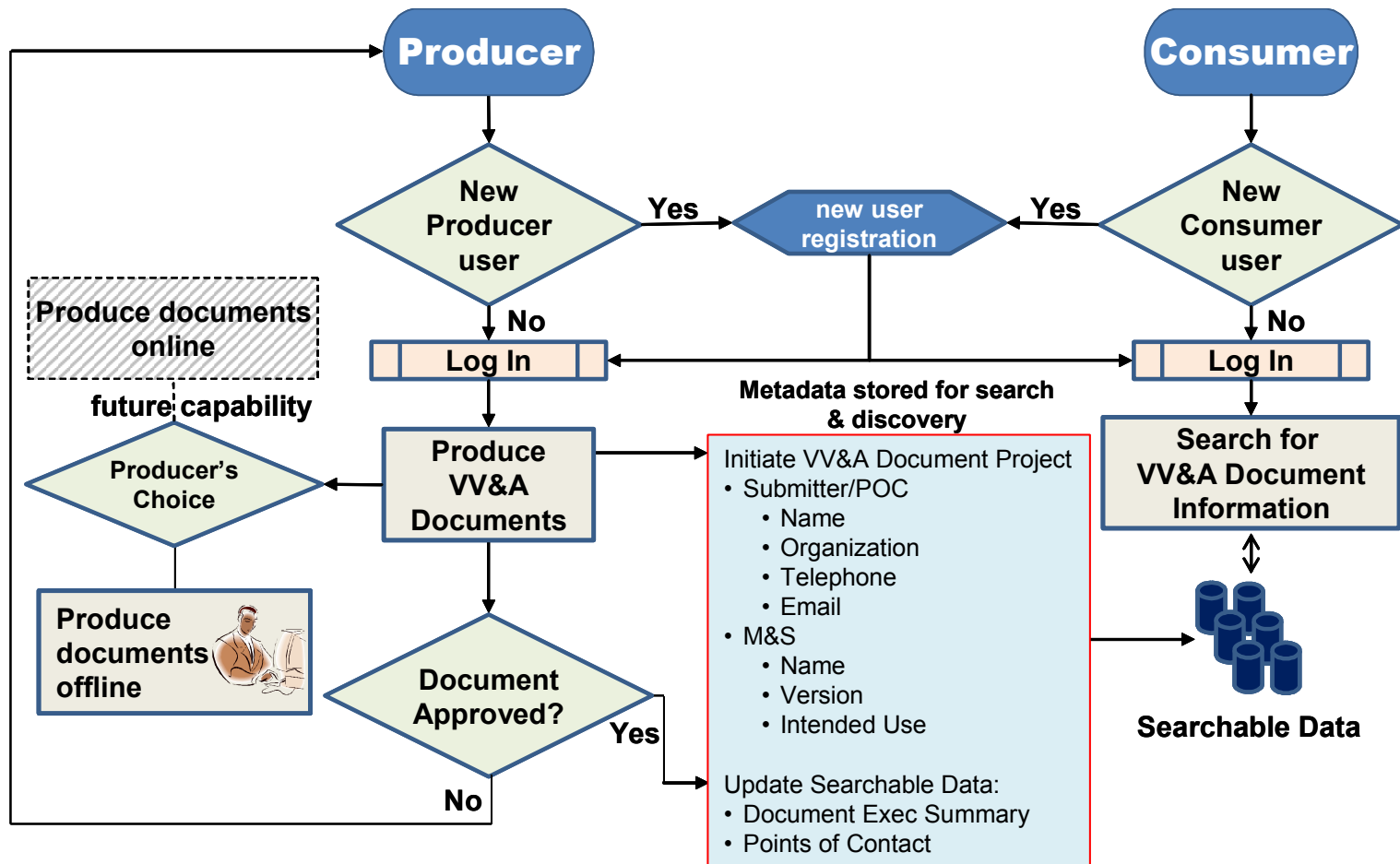
# Architecture & Software Development

- Architecture focus
- Producer & Consumer views
- DVDT Architecture
- DVDT XML Relationship
- Example registration concept
- Beta testers

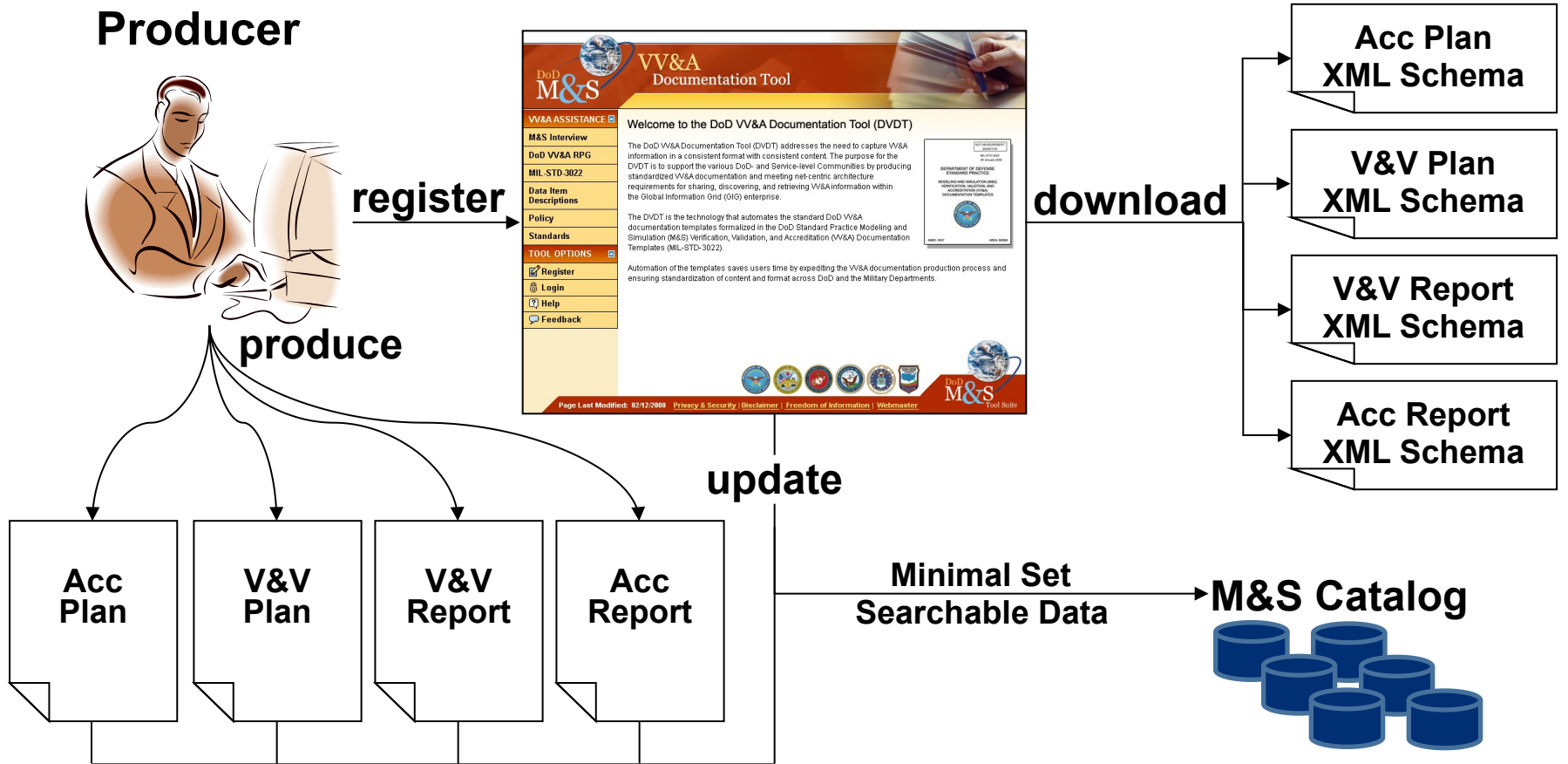
# Architecture Focus

- In January 2008 focus turned
  - to an architecture that would allow offline document production and storage
  - from one that would provide an online capability to produce documents
- Offline production and storage capability assists producer in managing information common to all four documents identified in MIL-STD-3022
- DVDT populates the four documents with the common information when documents are stored together
- Coordination on production of each individual document by disparate organizations will occur through means used by those organizations
  - e.g., integrated digital environment, engineering environment, knowledge sharing environment, or sharing files through email
- Decisions where to retain the documents under control left to producers

# DVDT Producer / Consumer Views



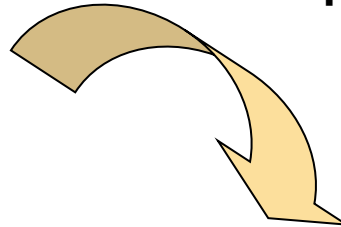
# DVDT Architecture





# DVDT XML Relationship

## Download Templates



DoD M&S VV&A Documentation Tool

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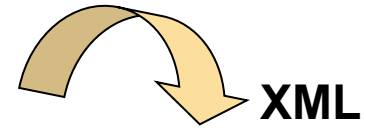
ACCREDITATION PLAN EXECUTIVE SUMMARY

1. PROBLEM STATEMENT

1.1 Intended Use

1.2 M&S Overview

1.3 M&S Application



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  Mauris ipsum. Sed dapibus tellus nec magna.
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# Example Registration Concept

- Registering could be similar to signing up for a Defense Acquisition University course
- Needed to access tool
  - Common Access Card,
  - Public Key Infrastructure certificate,
  - Username and password,
  - Social security number and date of birth, or
  - Special country coded number
- Registration process collects metadata for discovery and sharing

<https://learn.dau.mil/html/clc/Register.jsp>

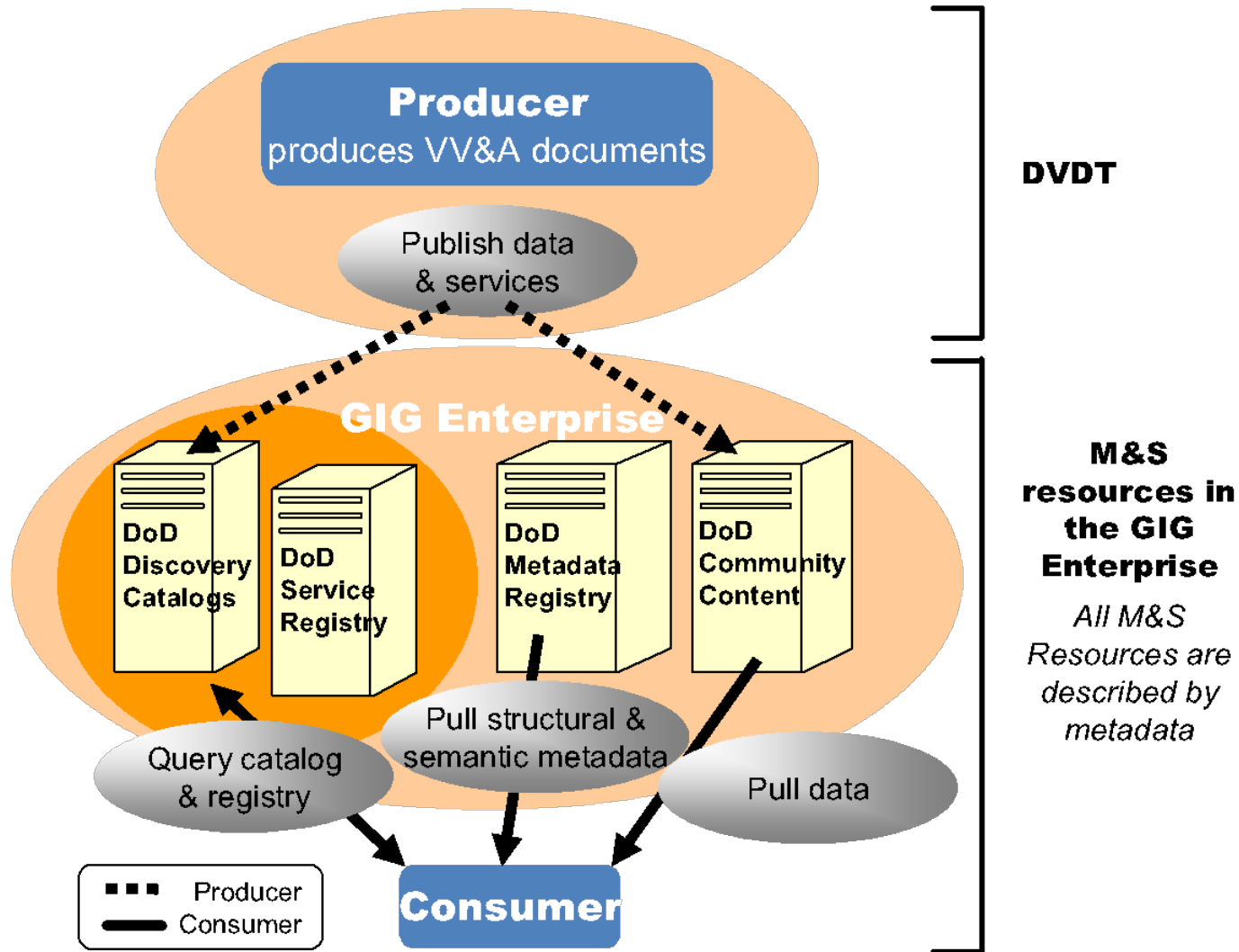
# Beta Testers

- Listed here are some of the organizations that have expressed interest in participating in the beta testing process:
  - Joint Test and Evaluation Methodology (JTEM)
  - Military Satellite Communications Joint Program Office
  - National Security Agency
  - Naval Air Systems Command, Unmanned Aerial Vehicles Program Office (PMA-263)
  - Naval Air Warfare Center Aircraft Division (AIR 5.1.6.11)
  - Naval Air Warfare Center Weapons Division, Tactical Weapons Office
  - Naval Postgraduate School Modeling, Virtual Environments, and Simulation Institute
  - NAVSEA Dahlgren Accreditation Team
  - U.S. Air Force Air Mobility Command Integration Division
  - U.S. Army Capabilities Integration Center (ARCIC)
  - U.S. Army Research, Development, and Engineering Command (RDEC)
  - U.S. Coast Guard Office of Requirements and Analysis

# Related Efforts

- M&S Discovery Catalogs
- M&S Search Tool

# Discoverable VV&A Document Data



# M&S Search Tool

Need VV&A information?

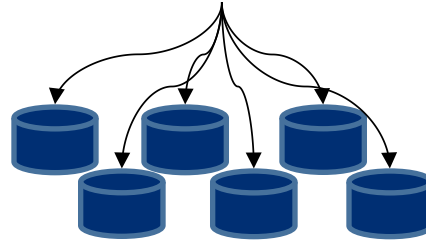


+

search

=

VV&A  
information



Using the power of the search and discovery capability  
to conduct focused federated searches for  
information about VV&A documents

# Summary

- This presentation has updated you on the status of the DoD M&S Project, Standardized Documentation for VV&A.
- The topics covered included project management; policy, guidance & standards; taxonomy & metadata; and architecture & software development.
- Two related efforts, DoD Discovery Catalogs and M&S Search Tool have also been discussed.
- The project is on schedule for an initial release on 30 September 2008.

# Contact Information

For more information,  
or to use the DVDT to support a VV&A project,  
contact any one of the authors below.

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