

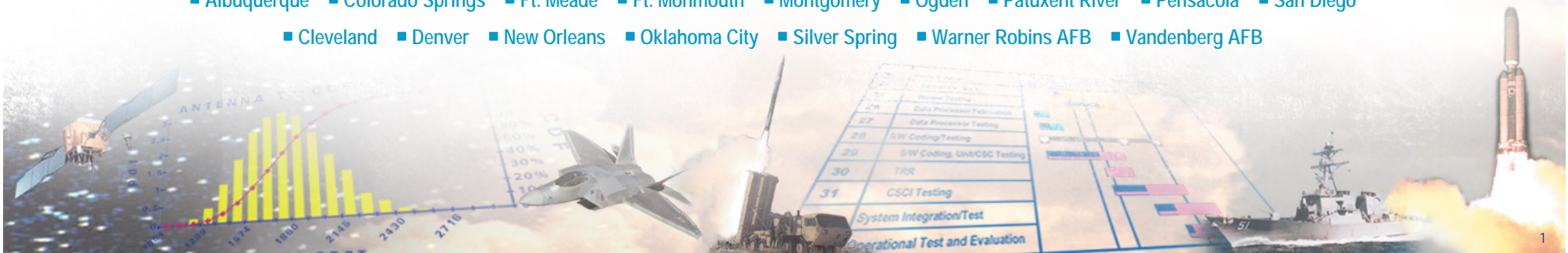


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Cost Modeling Data Standards for Model Integration

Presented to SCEA/ISPA Conference
June 2007

- Los Angeles ■ Washington, D.C. ■ Boston ■ Chantilly ■ Huntsville ■ Dayton ■ Santa Barbara
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Outline



- Introduction
- Background
- Use of Data Standards in SOA
- Standards Development
- Summary



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Introduction and Background

- **Service-oriented Architecture (SOA)**
- **Standards**
- **Data Tagging**
- **The Cost Analysis Community of Interest**



Standards and SOA

- **SOA (service-oriented architecture) promises enterprises endless advantages: increased code reuse, reduced integration expense, better security, and -- the big payoff -- greater business agility.**
- **Standards are integral to web services, and web services are key to a service oriented architecture.**
 - Source: *Service Oriented Architecture Reference Guide*; U.S. Army Enterprise Solutions Competency Center; PEO-EIS; Jan07
- **In most organizations, it makes sense to begin policy-making efforts with standards.**
 - Source: *InfoWorld: Governing SOA*; By Phillip J. Windley; January 19, 2006



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Communities of Interest (COIs) and the GIG

- The Global Information Grid (GIG) is the collective of all of DoD's personnel who are on-line at any given time, DOD communications and other enterprise infrastructure, and all warrior, intelligence, and business applications.
- **Communities of Interest** (COI) are collaboration groups of users, who must exchange information in pursuit of their shared goals, interests, missions, or business processes, and who, therefore must have shared vocabulary for the information they exchange.

Source: DoD Data Asset Visibility; Defense Information Systems Agency by Net-Centric Enterprise Services Program Management Office; January 26, 2005



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Tagging and The GIG

- **The Department of Defense Net-Centric Data Strategy requires that all Information Technology systems operating within the Global Information Grid (GIG) be “advertised” to enable their discovery and subsequent use by the widest possible audience.**
- **As expressed in the DOD Net-Centric Data Strategy, “advertising” means tagging information resources with metadata that illuminates their identity, nature, and content; key persons and organizations responsible for them; a variety of associated dates and product formats; and other information. It also means posting or publishing these advertisements in globally accessible registries, directories and catalogs.**

Source: Department of Defense Net-Centric Data Strategy memorandum;
DoD CIO; October 23, 2003



Objectives

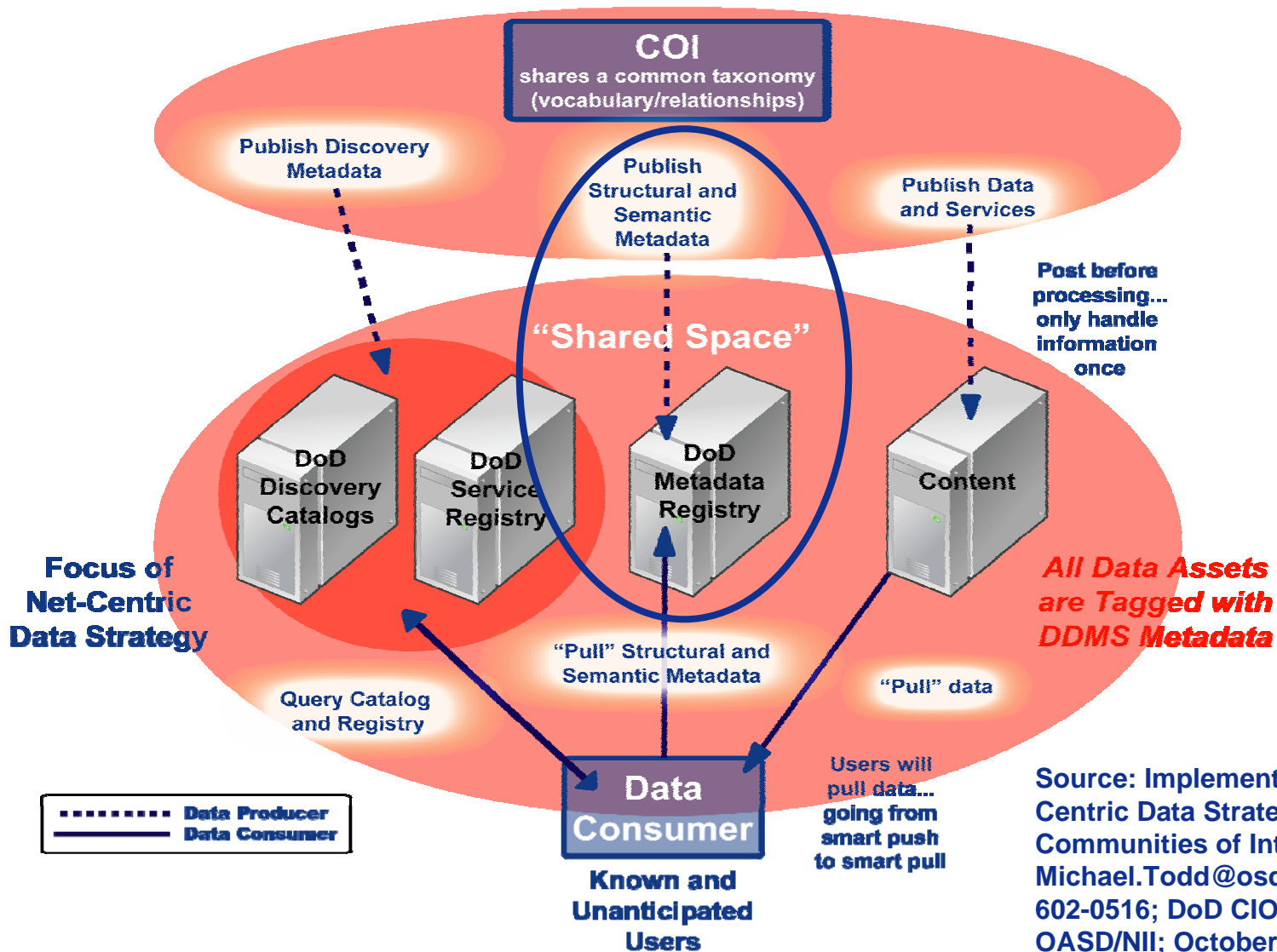
- The objective is to **tag** cost model content so it can be used and reused in different contexts.
- Tags may be thought of as simply descriptive labels. Collectively, the labels form a *vocabulary*.
- If a cost analysis tagging *vocabulary* exists which is well-understood, it is better to use this vocabulary for data exchange rather than re-invent model-to-model exchange formats for each future application.
- The initial data standards is the first version of that vocabulary.
- In this context, the goal of the this effort was to tag the cost analysis **Community of Interest (COI)** content.



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Implementing a Data Strategy

COIs Implementing the Data Strategy

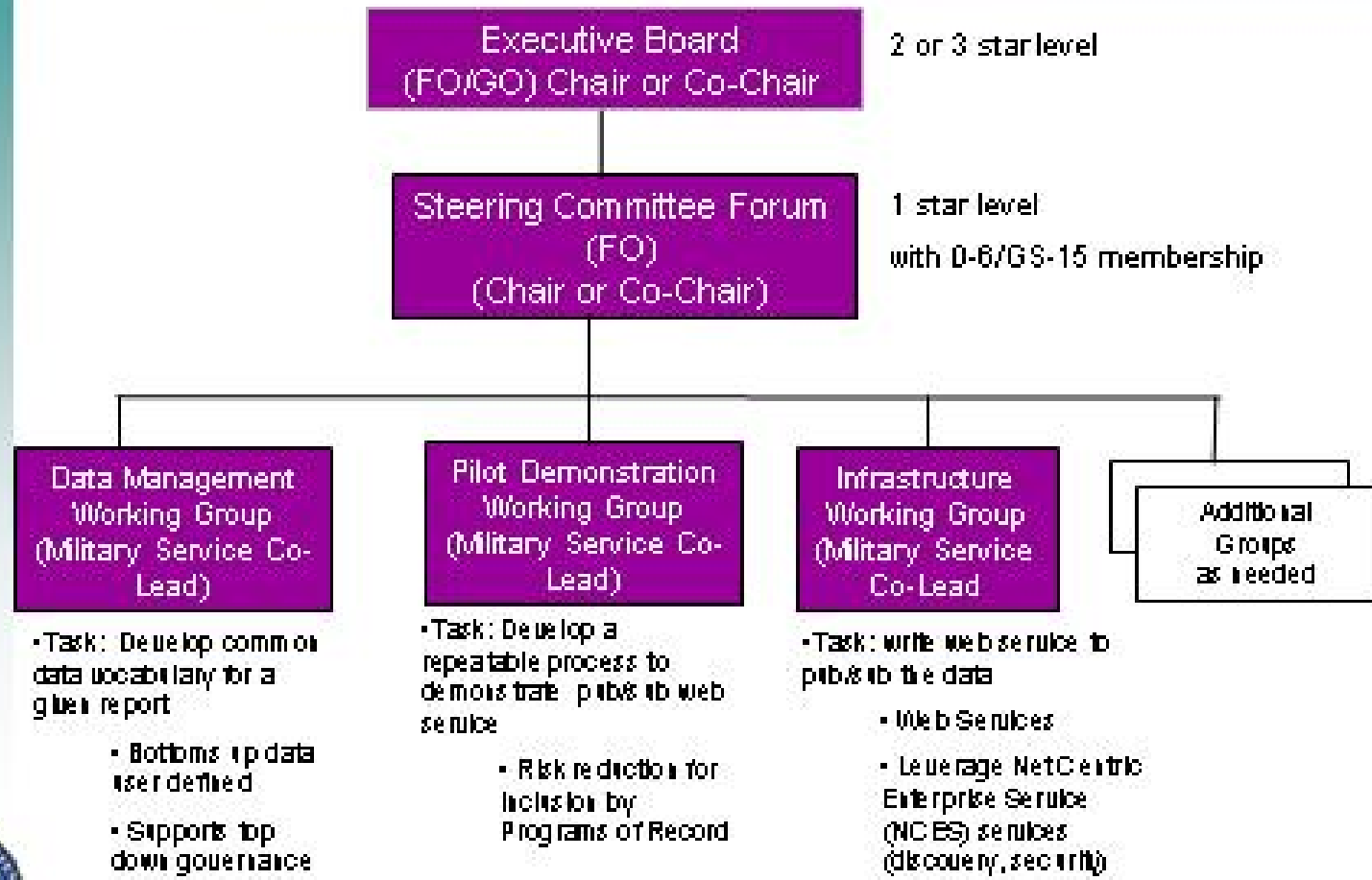




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A Net-Centric DoD
MIIICIG

Sample COI Organization Chart



FOR DISCUSSION PURPOSES ONLY

8

Source: Implementing the Net Centric Data Strategy using Communities of Interest;
Michael.Todd@osd.mil; 703-602-0516; DoD CIO(IM), OASD/NII; October 20, 2005



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Cost COI candidate Members

- **Models and simulations**
 - Cost as constraint and objective function
- **Acquisition programs**
 - Program estimates
- **Cost estimating organizations**
 - Research
 - Tools
 - Databases



How it might look: Model Integration

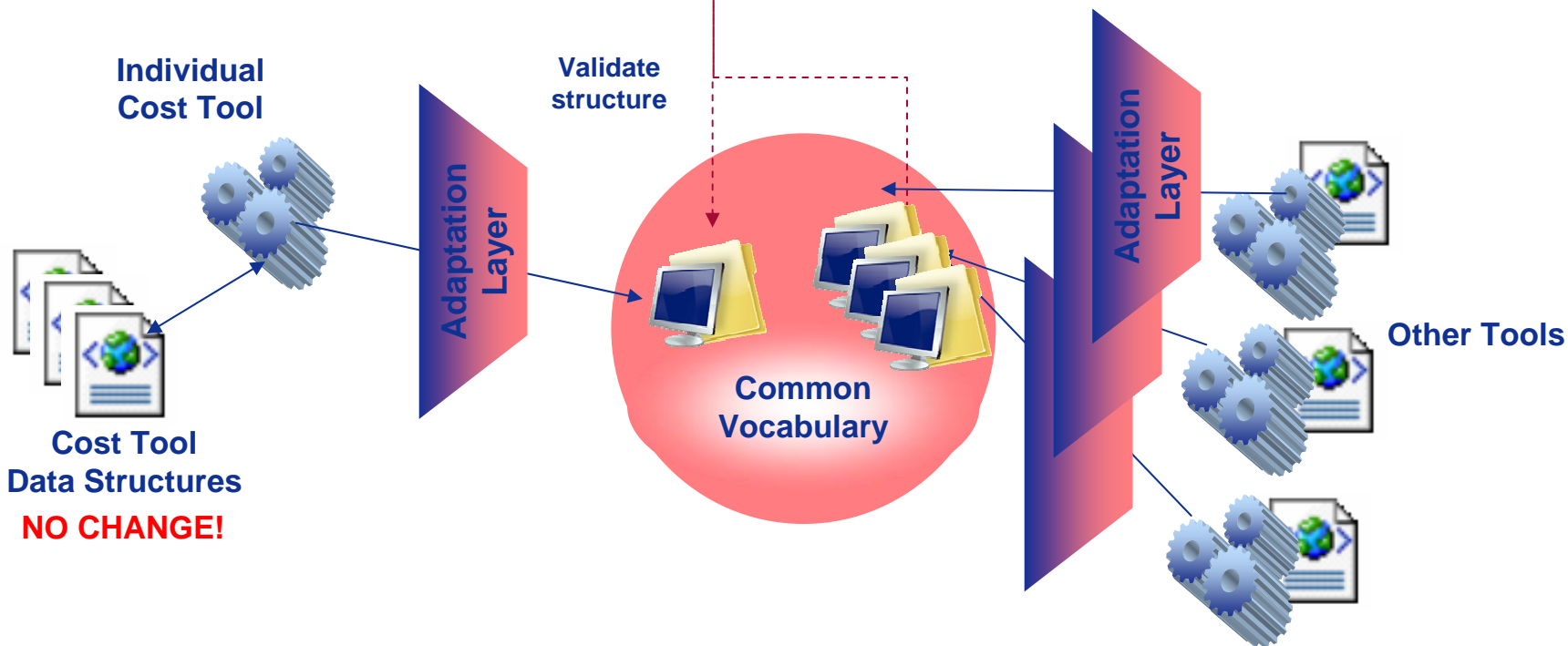
DoD Metadata Registry



registered in



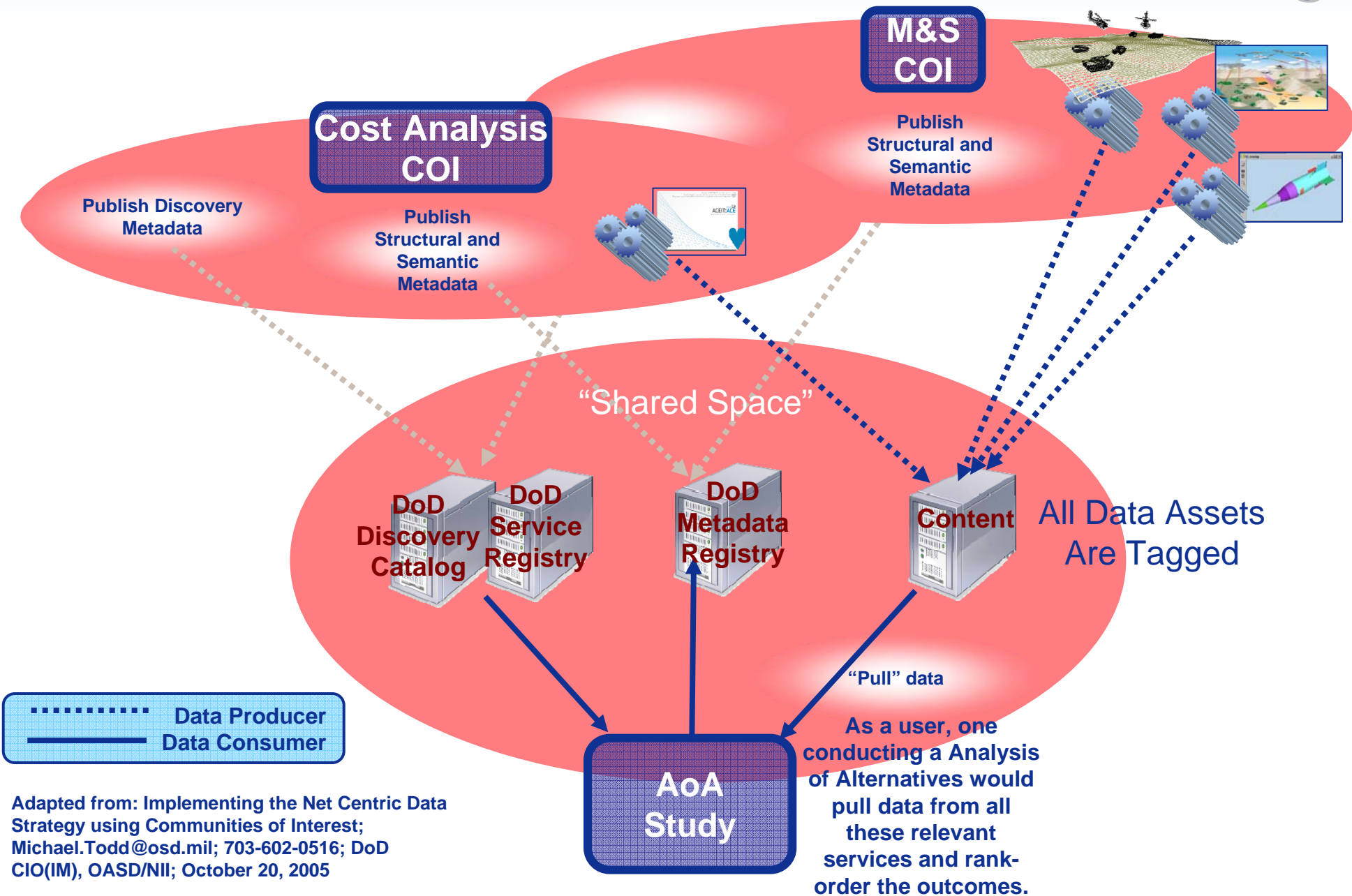
IPCM Data Standard Schema (.xsd)





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Analysis of Alternatives in an SOA Setting

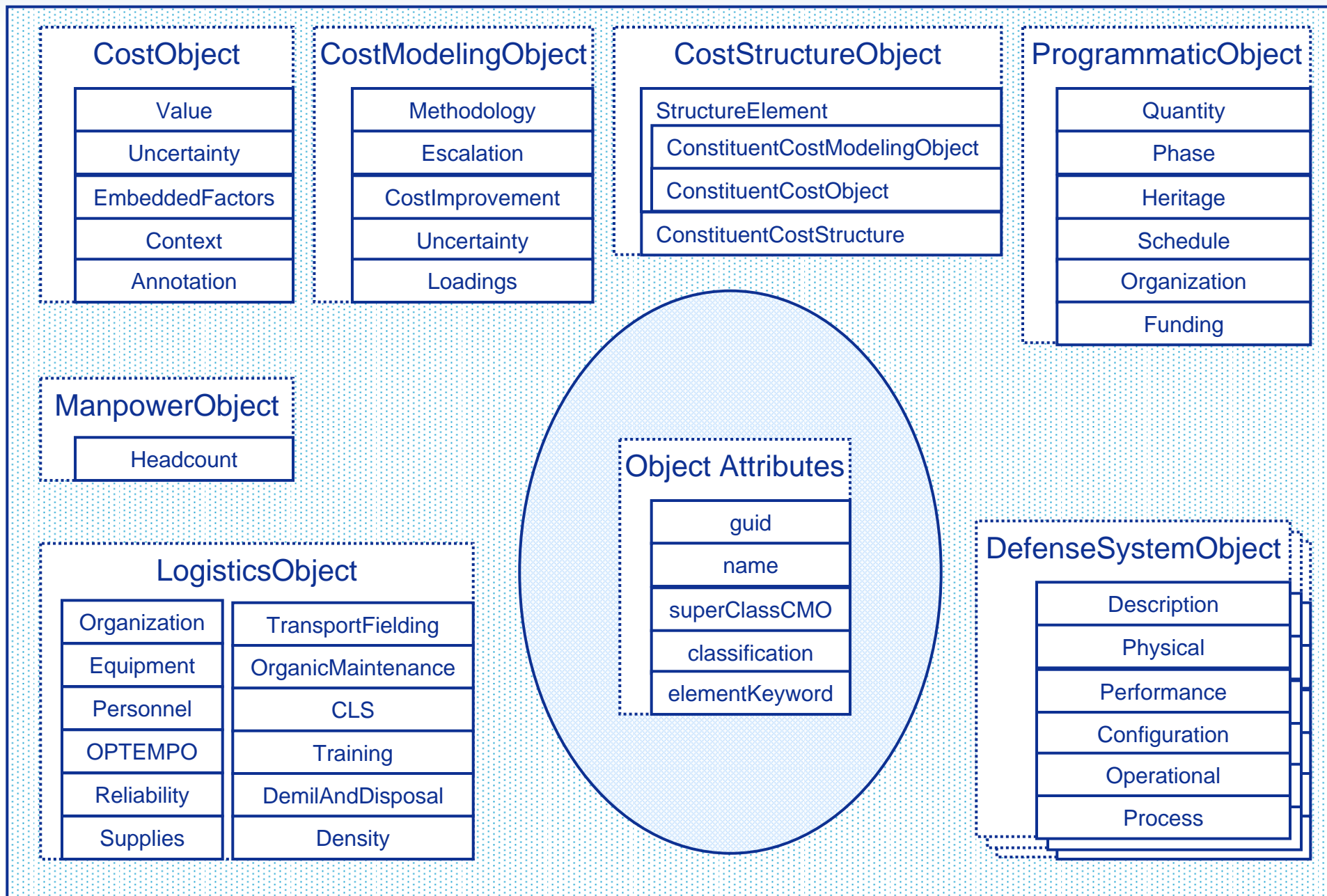


Adapted from: Implementing the Net Centric Data Strategy using Communities of Interest; Michael.Todd@osd.mil; 703-602-0516; DoD CIO(IM), OASD/NII; October 20, 2005



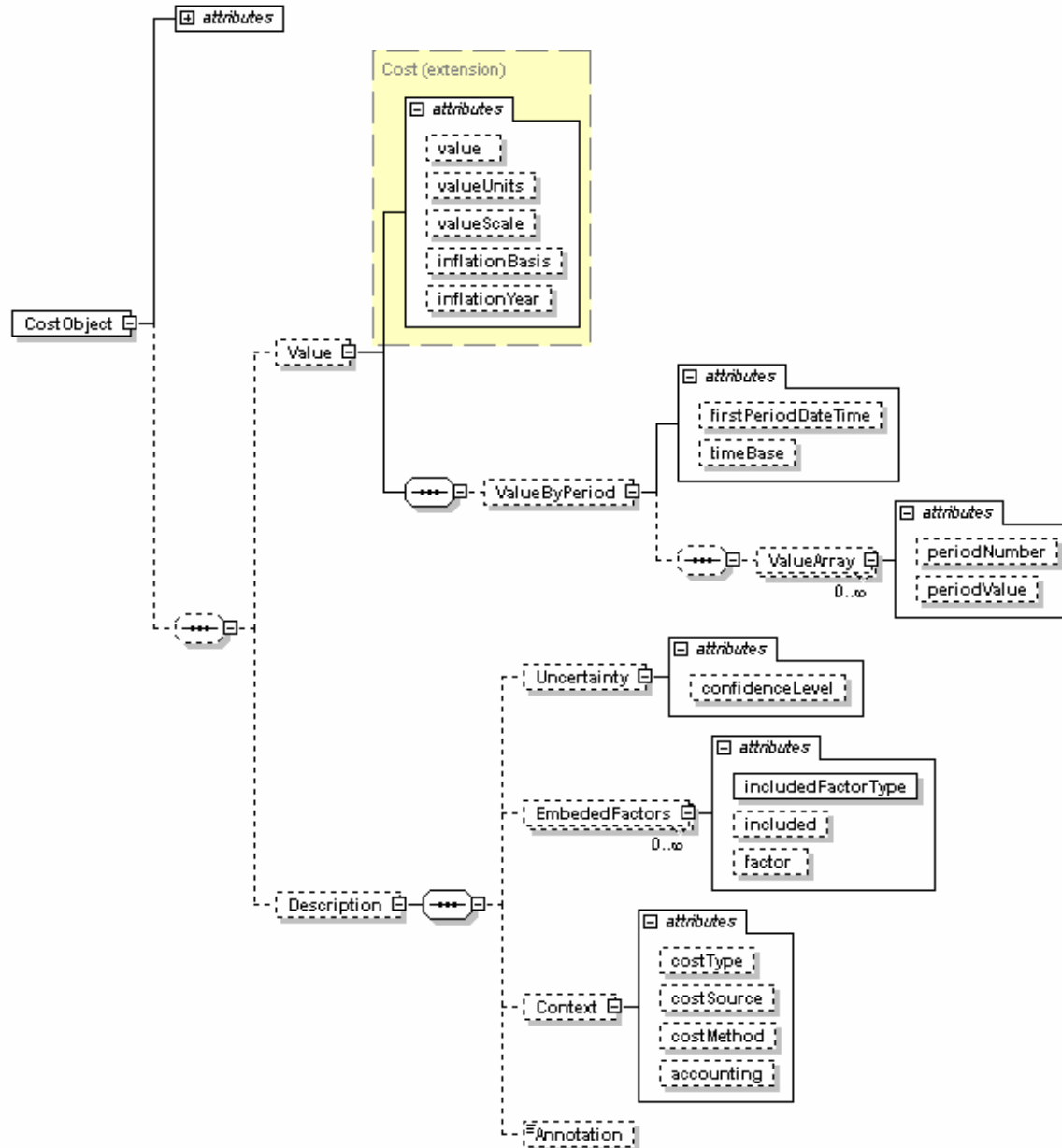
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Key Cost Schema Objects





CostObject Schema

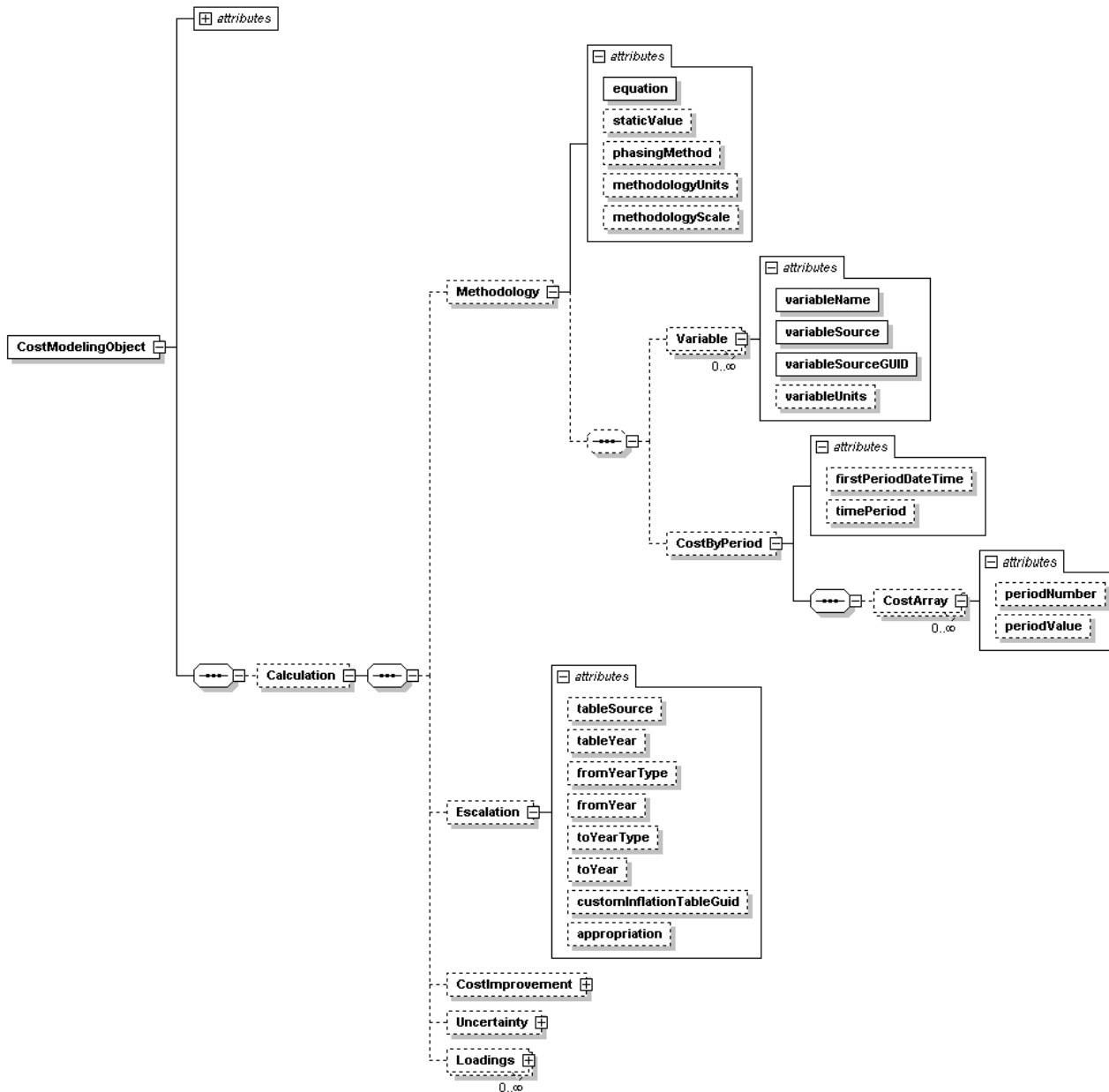




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CostModelingObject Schema

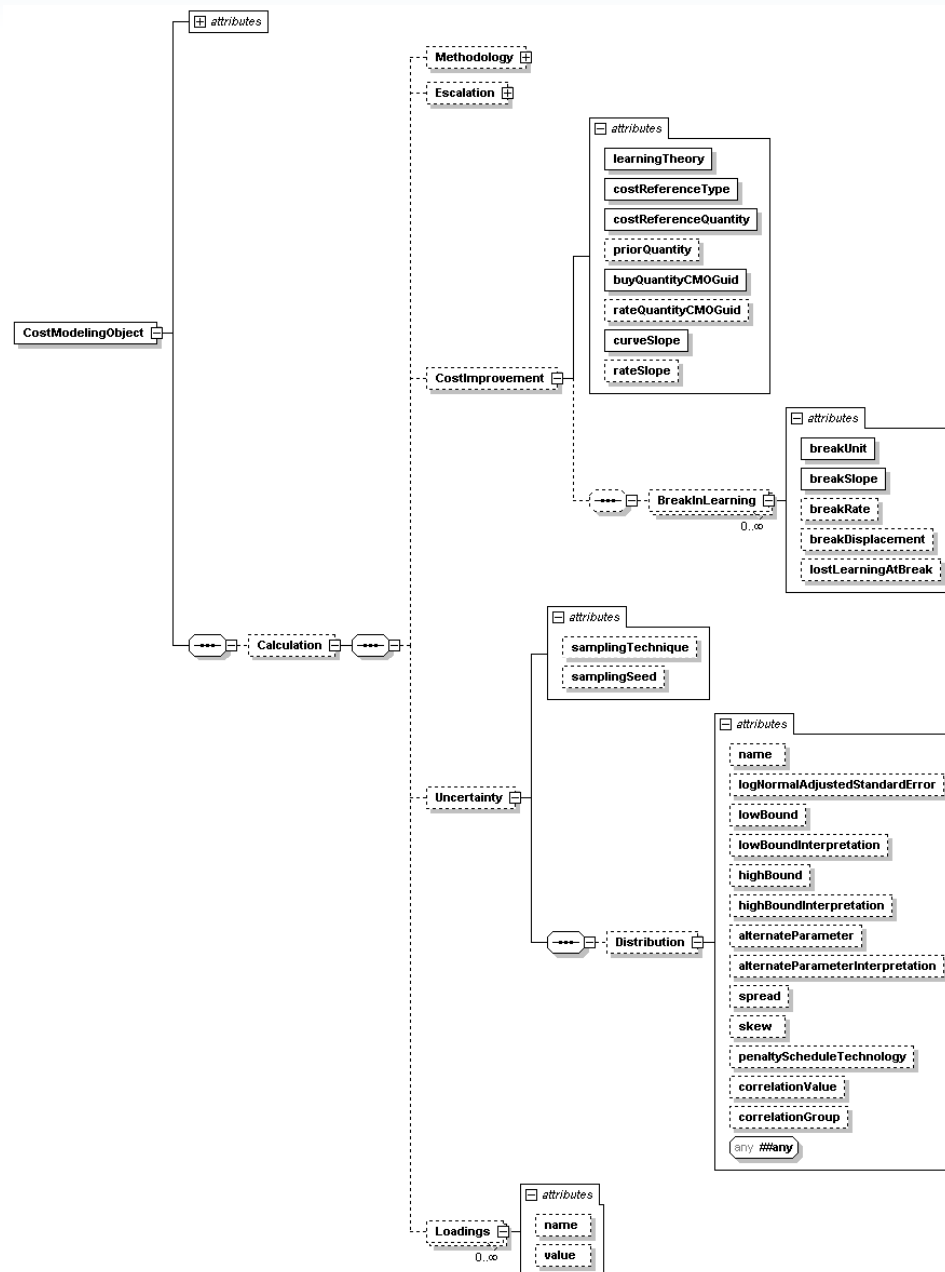
(1 of 2)





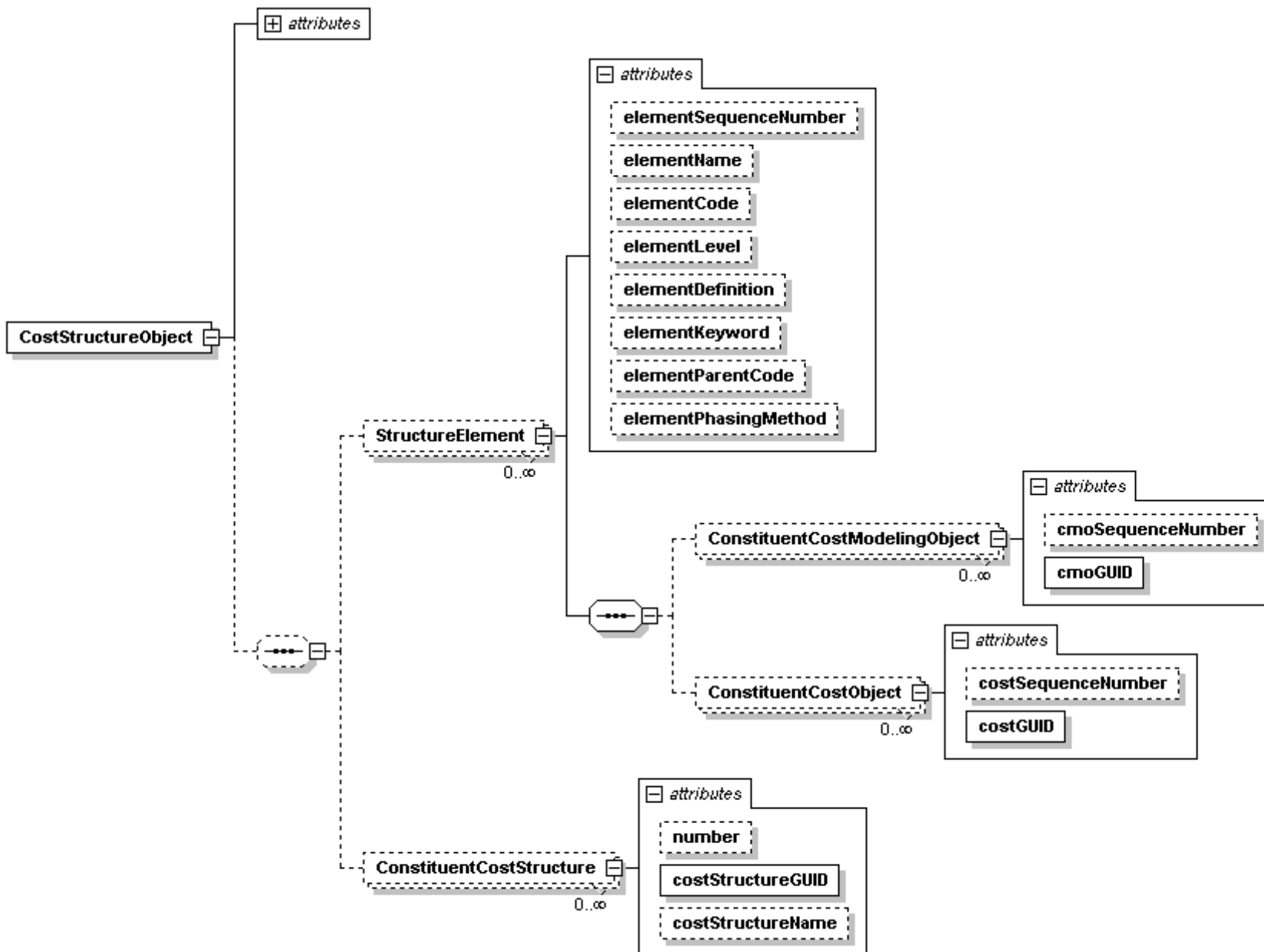
CostModelingObject Schema

(2 of 2)





CostStructureObject Schema





Summary

- **The schema packages have been run through the DoD Metadata Registry validator and have been submitted into the Modeling and Simulation Namespace.**
- **By adapting the cost estimating data structures to XML, this effort has laid a strong foundation for enabling cost model utility in an SOA setting.**
- **The author encourages others in the cost and technical modeling and simulation communities to participate in a future formation of a Cost Analysis COI to further refine and promulgate cost analysis data standards.**