Using Frameworks in a Government Contracting Environment:
Case Study at the NASA Center for Computational Sciences
Presentation Outline

- FEDSIM & NCCS Environment
- Ruling Frameworks
- Implications
- Reconciling Multiple Frameworks
FEDSIM & NCCS Environment

- FEDSIM, part of the General Services Administration’s (GSA’s) Federal Acquisition Service (FAS), has supported the NASA Center for Computational Sciences (NCCS) since 2000, primarily by contracting for system integration and operation of high performance computers (HPCs).

- The NCCS, located at Goddard Space Flight Center (GSFC) in Greenbelt, MD, provides high performance computers, mass storage, network infrastructure and support services. NCCS’ users are computational scientists studying the Earth, space and exploration domains using computer simulation. Climate modeling is the largest workload.
Everyone has to work within the rules of their environment...

> The Government is no different...
Ruling Frameworks

- FEDSIM (GSA) and NASA, U.S. Government agencies, are subject to multiple frameworks.
- In a Procurement Environment, agencies are subject to a broad range of regulations, policy and technical standards and guidelines, including...
- Federal Acquisition Regulation (FAR) and NASA FAR Supplement
- Major procurements are subject to Office of Management and Budget (OMB) Circular A-11, Part 7, which requires Exhibit 300 Business Cases and multiple standards
Implications

- FAR procurement rules encourage competition
- FAR, NASA FAR Supplement and OMB mandate Earned Value Management, a schedule and cost control framework
- OMB requires reporting of Enterprise Architecture (EA) compliance. (Andy Blumental is addressing EA today.)
Implications

- OMB policy encourages use of management frameworks like ITIL and industry technical standards, particularly open standards, to promote interoperability, compatibility, efficiency and good management without restricting competitive procurements.

- OMB (and GAO) require “line-of-sight” linkage between agency strategic objectives and automated and manual systems. EA Performance Reference Model (PRM) provides a framework of performance metrics for this linkage.
Implications

- NCCS also uses technical standards – Linux, Fortran, SQL, MPI, OpenMP, and many others, predominantly open system standards. The EA Technical Reference Model provides a framework of technical standards.

- NCCS’ integration contractor uses multiple technical and management standards, such as PMI’s Project Management Body of Knowledge (PMBOK) for project management.
Reconciling Multiple Frameworks

- Competition vs. Standardization.
- Cost/Benefit.
- Performance Tradeoffs.
- Flexibility vs. Auditability.
- The Line of Sight.
- Prioritization.
- Prescription vs. Evaluation
- Functional vs. Compatibility-Limited
- Open vs. Proprietary Standards