National Aeronautics and Space Administration

NASA Earned Value Management (EVM) Update

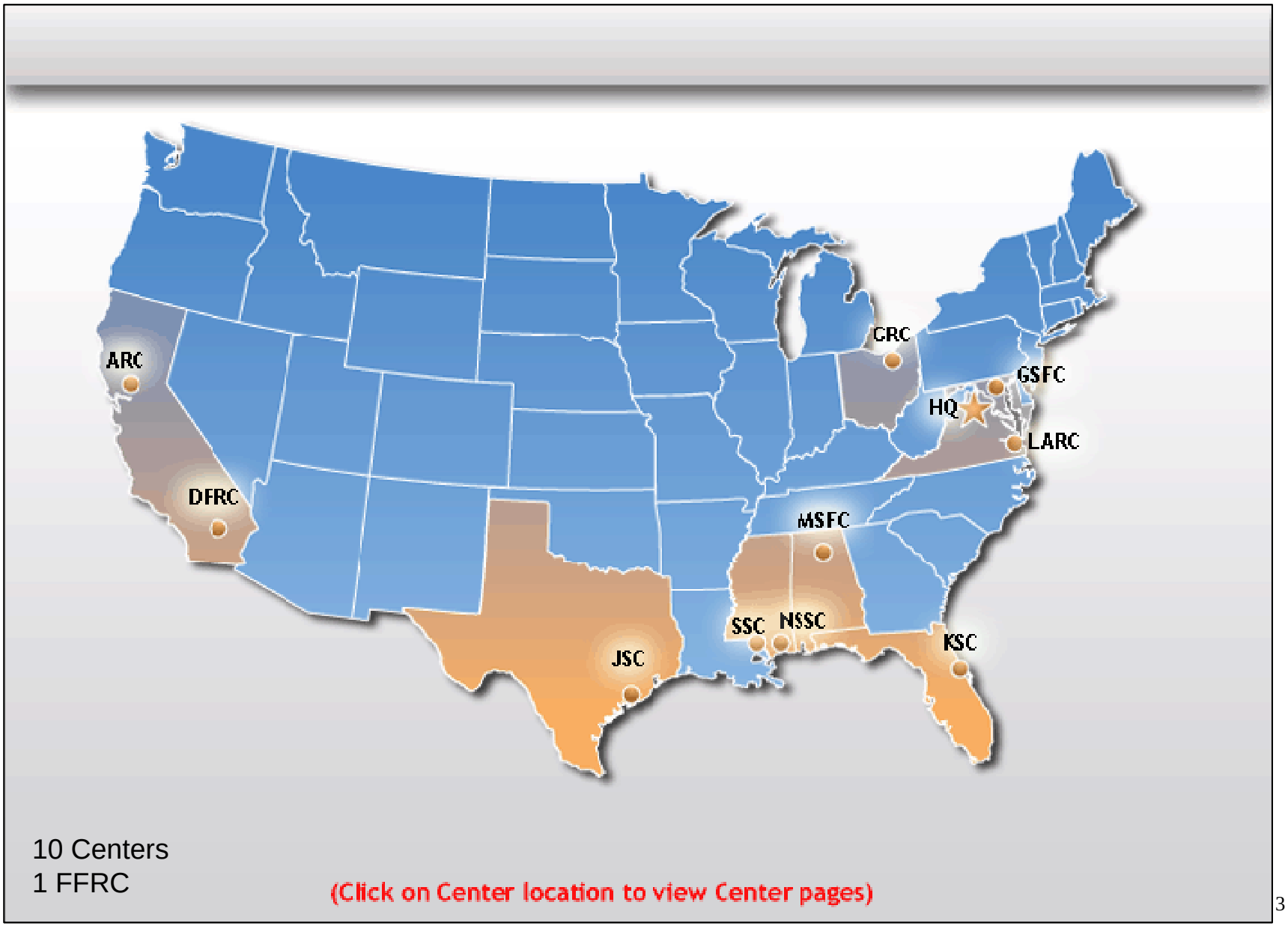
EVM World

Jerald Kerby
May 2013

Outline

- NASA Centers
- EVM Requirements
- EVM Assessment/Maturity Model
- EVM Goals/Partners
- EVM Capability
- Surveillance
- Lessons Learned
- Available EVM Resources
- Organization Focal Points
- GAO Audit
- Summary
- Questions

NASA Centers



10 Centers
1 FFRC

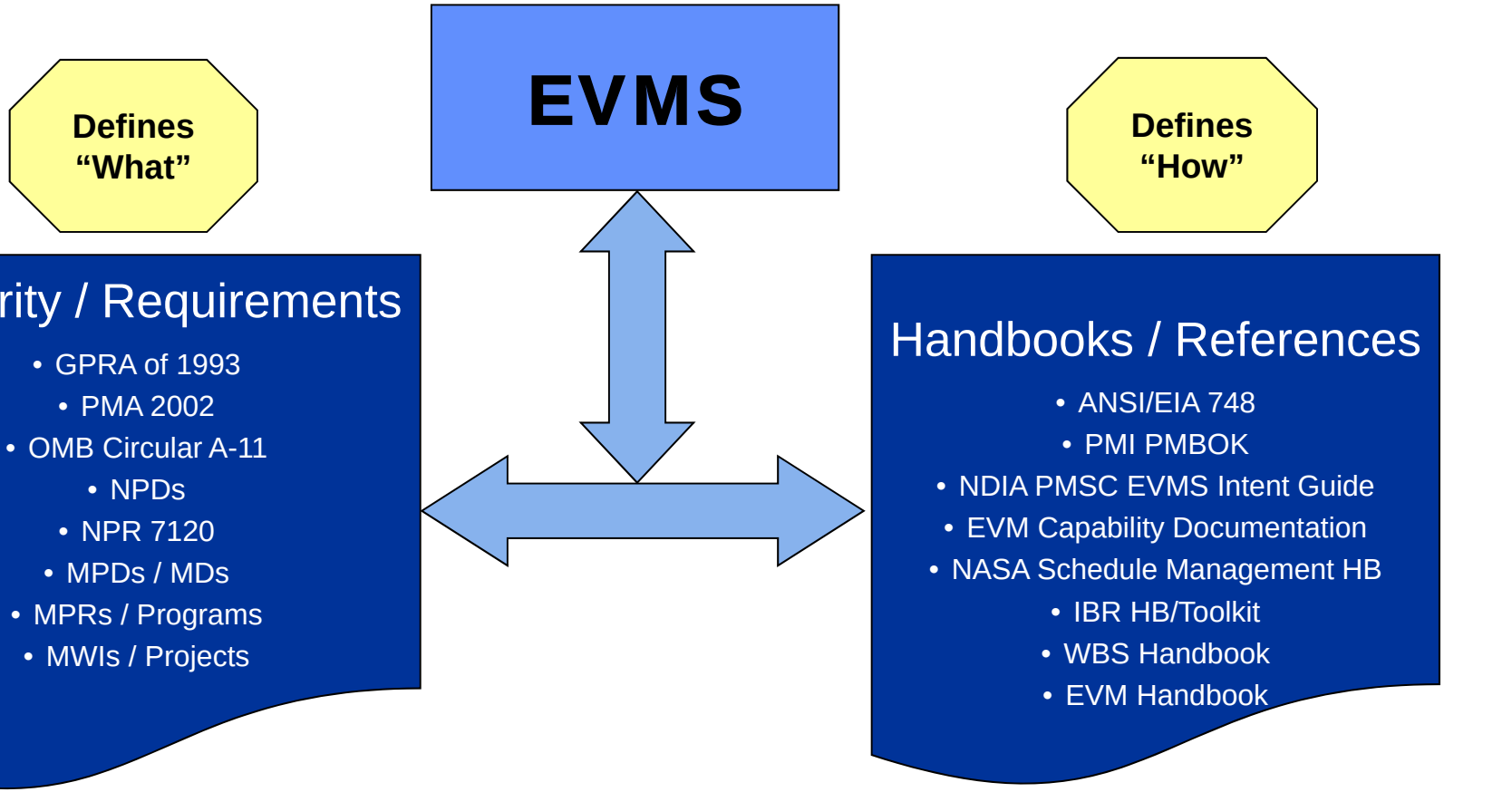
(Click on Center location to view Center pages)

Overarching EVM Requirements

- OMB Circular A-11 requires for total project EVM (in-house and contracted effort) to comply with the ANSI/EIA-748 guidelines
  - Details are in the Capital Planning Guide Supplement

- The OMB Circular A-11 requirement has been flowed down to the current version of NPR 7120.5

NASA Document Hierarchy



Forms the foundation for EVM and facilitates training, mentoring, tool development, assessment, and integration

NPR 7120 EVM Requirements

- Planning begins during Formulation.
- EVM is applied in phases C and D to projects with an estimated life cycle cost >$20 million and to Phase E modifications, enhancements, or upgrades with an estimated cost > $20 million.
- EVM system complies with the guidelines in ANSI/EIA-748 and is described in the Project Plan.
- EVM system requirements are flowed down to applicable suppliers. (NFS 1834 is applied to contractors.)
- The project's Performance Measurement Baseline (PMB) is established in Phase B in preparation for KDP C approval and is assessed during a review of the integrated baseline for the project.
- Project EVM reporting begins no later than 60 days after the start of Phase C. Contract EVM reporting begins no later than 90 days after contract award.

EVM Requirements - Excerpts of Interest

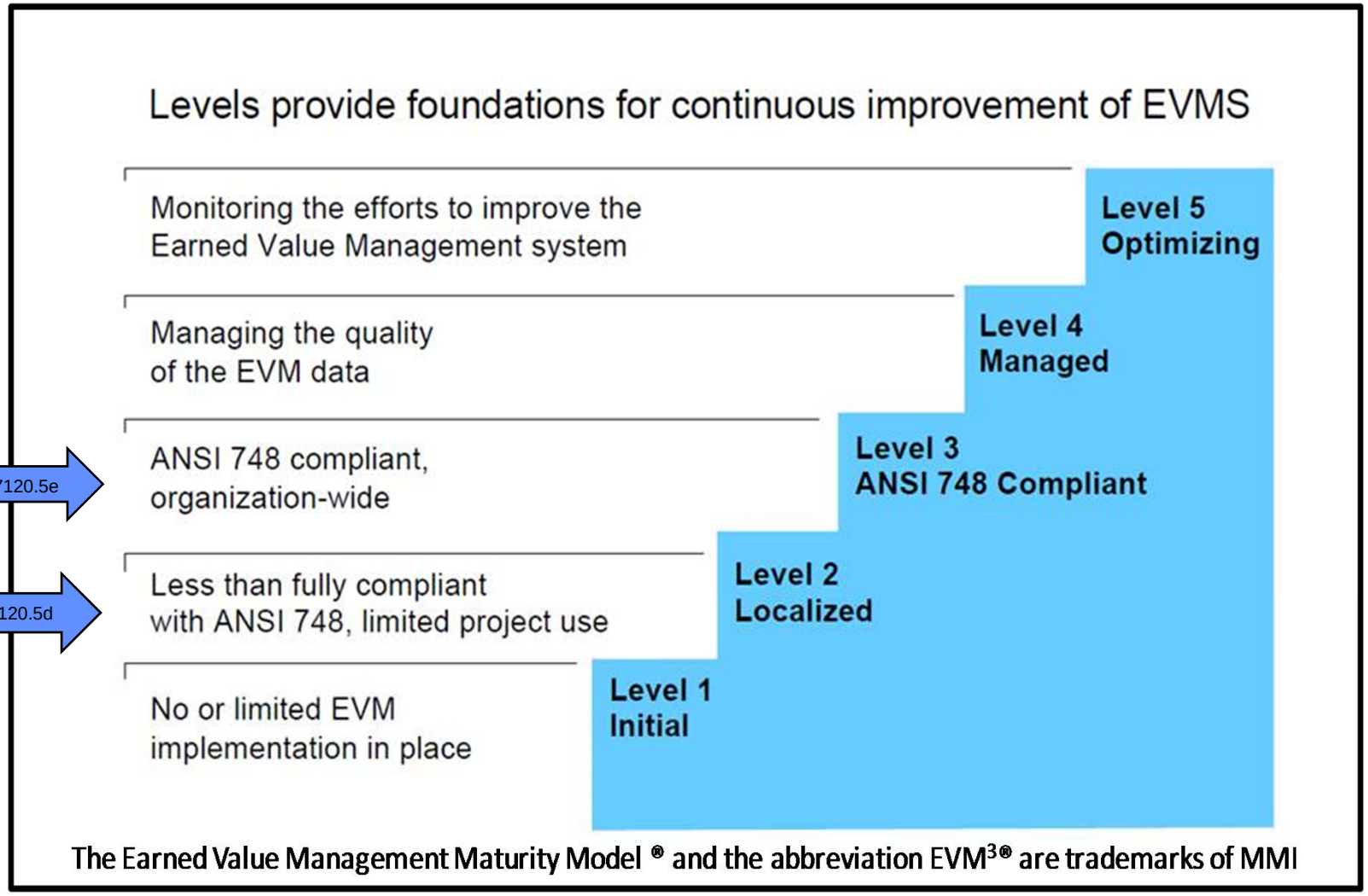
- 7120.5D: (Past)
  - (2) The Project's EVM approach is in-place by KDP C and implemented in Phase C through KDP E.
  - (4) As a minimum, EVM **principles**, as defined by ANSI/EIA-748, *Earned Value Management Systems*, apply from KDP C through KDP E, if the project's life-cycle cost is at or greater than $20M.

- 7120.5E (Present)
  - 2.2.7 Programs, at the discretion of the MDAA, projects in phases C and D with a life cycle cost estimated to be greater than $20 million and Phase E project modifications, enhancements, or upgrades with an estimated development cost greater than $20 million shall perform earned value management (EVM) with an EVM system that complies with the **guidelines** in ANSI/EIA-748, *Standard for Earned Value Management Systems*. Use of the NASA's EVM capability and processes, will ensure compliance with the ANSI standard. This capability allows tailoring to match the individual needs of the program or project, while still meeting the ANSI-748 guidelines.
  - 2.2.8 EVM system requirements shall be applied to applicable suppliers in accordance with the NASA Federal Acquisition Regulation (FAR) Supplement 1834.201 and to in-house elements.
  - 2.2.9 In accordance with the NASA Federal Acquisition Regulation (FAR) Supplement 1834.201, EVM system requirements shall be applied to applicable suppliers and to in-house work elements. For contracts that require EVM, a Contract Performance Report (CPR), Integrated Master Schedule (IMS), and Work Breakdown Structure (WBS) are required deliverables and the appropriate data requirements descriptions (DRDs) included in the contract and/or agreement.
  - 2.2.10 For projects requiring EVM, Mission Directorates shall conduct an pre-approval integrated baseline review as part of their preparations for KDP C to ensure that the project's work is properly linked with its cost, schedule, and risk and that the systems are in place to conduct EVM.

EVM Requirements

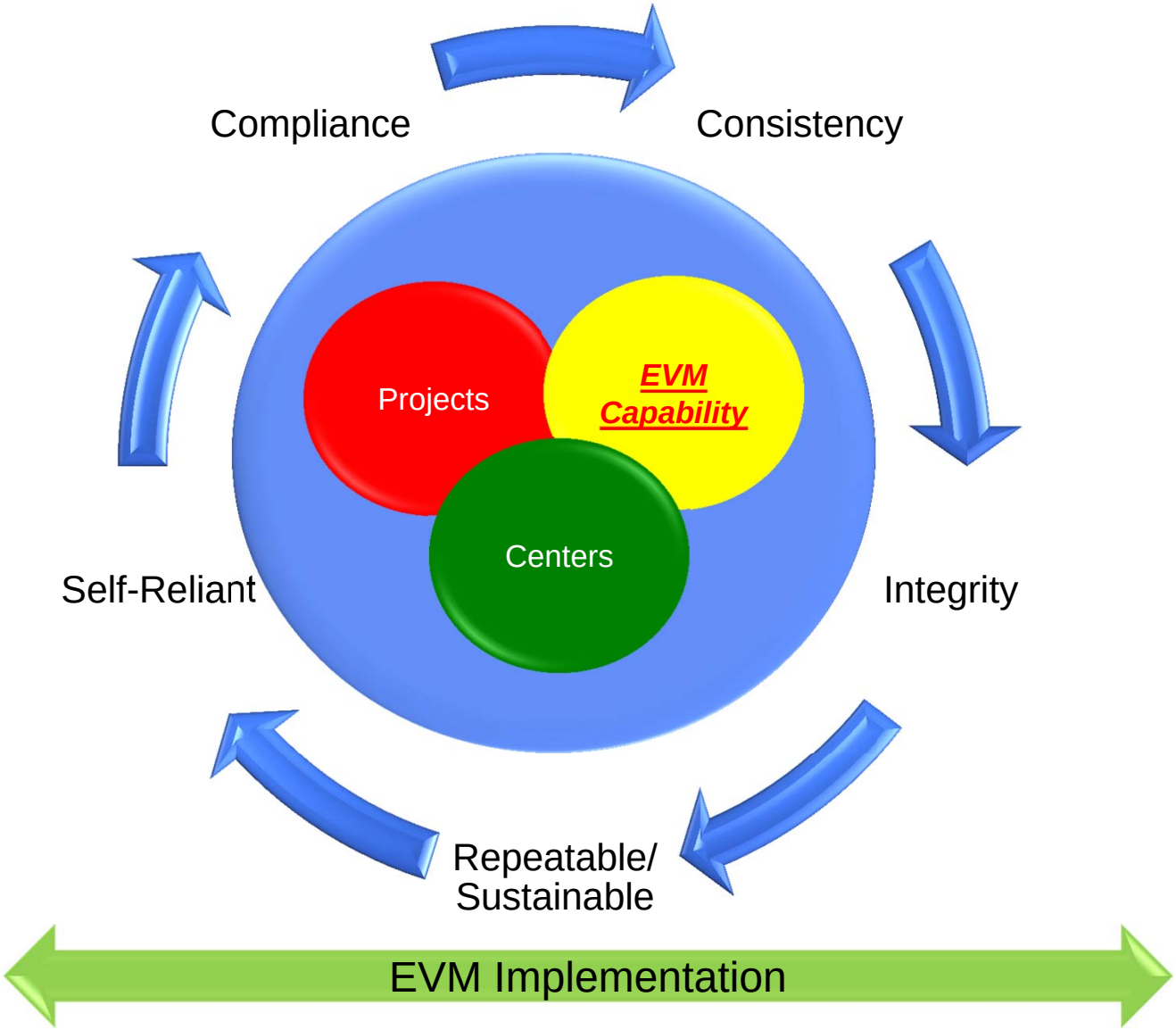
NASA Projects		
> $50M	**$20M to $50M**	**$0 to $20M**
32 Guidelines NASA System	32 Guidelines NASA System	Non-EVM Performance Mgmt
Flow-Down to Contractors		
> $50M	**$20M or More**	**Less than $20M**
32 Guidelines Validated Full EVM Terms and Conditions of DRDs	32 Guidelines Compliance Full EVM Terms and Conditions of DRDs	Non-EVM Performance Mgmt Performance Mgmt Terms and Conditions of DRD
All Supporting Contractors		

EVM Assessment/Maturity Model



- Requirements and Process in place
- Future Implementation will key

NASA EVM Goals/Partners



What is the NASA EVM Capability?

Overall Objective was to develop an Agency EVM capability that complies with the guidelines in ANSI/EIA-748 and test through two pilots, refine and finalize EVM process and documentation based on test results.

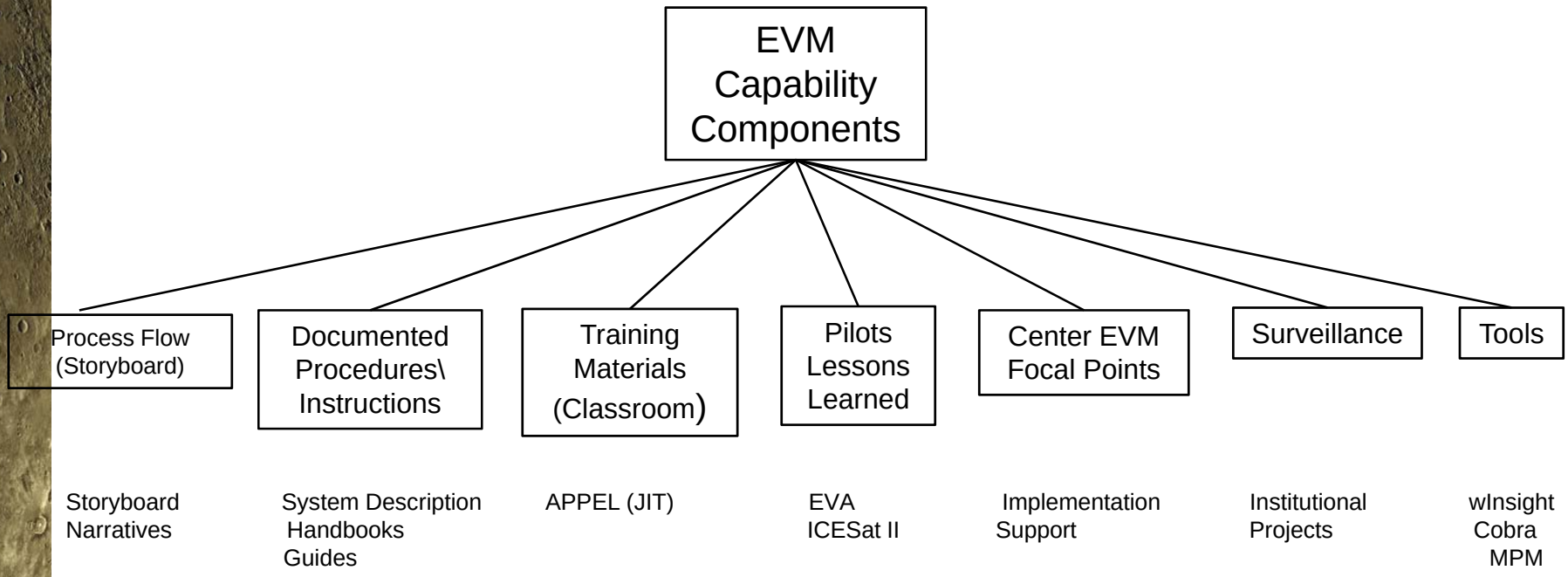
- A common agency EVM capability/process that complies with the guidelines in ANSI/EIA-748 for in-house projects
- Documented with supporting handbooks, instructions, workarounds, etc.
- Tested through two pilot projects, Extra-vehicular Activities (EVA) and Ice, Clouds and Land Elevation Satellite (ICESat) II
- Approved by independent Peer Review Team with representation from each Mission Directorate and Center
- Reported to a senior level Agency Steering Committee represented by each Mission Directorate and Center
- Approved initial (phased) rollout by the Agency Project Management Council (APMC)
  - Space Launch System (SLS) - (MSFC)
  - ICESat II (GSFC)
  - Focus on EVM flow-down to contracts across the Agency

Products Developed by EVM Capability

- ✓ EVM process flow diagrams (Storyboard)
- ✓ System Description (Detailed Process)
- ✓ Narratives (Summary Process)
- ✓ Project-Control Account Manager's (P-CAM) Reference Guide
  - Provides a quick reference for Technical Managers
- ✓ EVM Handbook
  - Overall Agency and general EVM guidance
- ✓ Pilots results
  - Lessons Learned/Issues/Workarounds/Recommendations
- ✓ EVM Acceptance/Surveillance Strategy
  - Acceptance Strategy
  - Surveillance Overview
- ✓ Software Acquisition Strategy
  - Hardware/Software access/acquisition
- ✓ Training Modules by Process Area
  - Modularized training for each process area

Latest documents are on the www.nen.nasa.gov website under the EVM sub community folder

EVM Capability Toolbox



Maintaining Integrity through Surveillance

- Surveillance is a key function to ensure usefulness as a management tool and compliance with external mandates.
- Surveillance Frequency (programmatic/institutional)
  - Recurring assessment as part of the lifecycle reviews and
  - NPR 7120.5 Center Surveys
- Mature EVM Capability for improved support of multi-center programs and projects

Top 5 Lessons Learned (linked to remaining risks)

1. Projects have to consider EVM Implementation from Day 1 of project
    1. Each time a charge code is created it effectively changes the technical WBS for the life of the project
    2. Where will the work be controlled and performance taken? EVM construct must be considered for control accounts and work packages.
2. Support Contractor costs will continue to be a constraint unless proper cost reporting requirements are flowed down to contracts
    - Support Contracts are often owned by other organizations outside of the projects with no EVM requirements.
3. Work Authorization agreements that document an agreement of scope, schedule and budget by both sponsor and performing orgs. are fundamental to the implementation of EVM
4. PP&C skills must be strengthened to support EVM and project management
5. Senior Level Management support is needed across the agency with the change management process

NASA EVM Resources

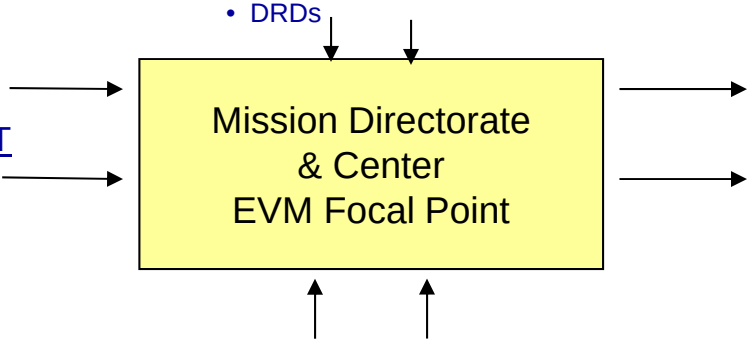
POLICY , HANDBOOKS, GUIDANCE

- NPR 7120.5
- EVM Handbook
- Scheduling Handbook
- IBR Toolkit
- WBS Handbook
- Project Control Account Manager (CAM) Guide (draft)
- Standardized WBS (7120.5)
- EVM Capability Products
  - Process/Storyboard
  - System Description
  - DRDs

MISSION

PROGRAM / PROJECT

REQUEST



PRODUCTS & SERVICES

- Center EVM Implementation Plans and Support
- Support for Agency and Centers EVM Policy & Procedures
- Training
- RFP Development
- SEB EVM Evaluation
- IBR Support
- Data Analysis/Tools
- Surveillance
- In-house EVM Support

RESOURCES, SYSTEMS, TOOLS

- Automated Tools
  - wInsight/Cobra
- Access to Training Materials and
  - online EVM/Scheduling/CAM/IBR training available through SATERN
- Websites
  - evm.nasa.gov
  - Internal material/Knowledge Now
  - nen.nasa.gov
- EVM Working Group Meetings and Peer Support

Organizational EVM Focal Points

ORGANIZATION	NAME	EMAIL ADDRESS	TEL
Headquarters - Focal Points			
IPCE	Charles Hunt	charles.d.hunt@nasa.gov	202.358.0803
Procurement	Carl Weber	carl.c.weber@nasa.gov	202.358.1784
OCIO	John Bosco	john.f.bosco@nasa.gov	202.358.1352
OCFO	Louis Barbier	louis.m.barbier@nasa.gov	202.358.1421
Mission Directorates - Focal Points			
SMD	Voleak Roeum	vroeum@nasa.gov	202.358.0941
HEOMD	Cris Guidi	cristina.guidi-1@nasa.gov	202.358.1777
Centers - Focal Points			
Ames	Alan Wong	alan.n.wong@nasa.gov	650.604.4952
Dryden	Patty Daws	patricia.r.daws@nasa.gov	661.276.2964
Glenn	Bob Sefcik	robertj.sefcik@nasa.gov	216.433.8445
Goddard	Stephen Shinn	stephen.a.shinn@nasa.gov	301.286.5894
	Julie Baker	julie.m.baker@nasa.gov	301.286.8096
Jet Propulsion Lab	Cal Chambers	calvin.r.chambers@jpl.nasa.gov	818.354.0092
Johnson	Glenn Lutz	glenn.c.lutz@nasa.gov	281.483.9257
Kennedy - Deputy Chair	Kristen Kehrer	kristen.c.kehrer@nasa.gov	321.867.3691
Langley	Dr. Barry Lazos	barry.s.lazos@nasa.gov	757.864.5731
Marshall - Chair	Jerald Kerby	jerald.g.kerby@nasa.gov	256.544.3243
Stennis	Deborah Norton	deborah.s.norton@nasa.gov	228.688.1168
	Robert Ross	robert.b.ross@nasa.gov	228.688.2320

NASA EVM Website (Homepage)
evm.nasa.gov

National Aeronautics and Space Administration

+ ABOUT NASA | + LATEST NEWS | + MULTIMEDIA | + MISSIONS | + MY NASA | + WORK FOR NASA

+ NASA Home

Earned Value Management (EVM)

- OVERVIEW
+ TUTORIAL
+ REGULATIONS/REQUIREMENTS
+ EVM FOCAL POINTS
+ IMPLEMENTATION HANDBOOKS
+ EVM TRAINING INFORMATION
+ EVM REPORTS
+ LINKS TO OTHER EVM SITES
+ EVM GLOSSARY
+ EVM ACRONYMS

+ NASA Home > EVM

The mission of the NASA Earned Value Management (EVM) website is to provide a primary on-line reference point for EVM theory, application, and use as an integrated project management process within NASA.

OVERVIEW

What is EVM?

EVM is an integrated management control system for assessing, understanding and quantifying what a contractor or field activity is achieving with program dollars

- Integrates technical, cost, schedule, with risk management
- Allows objective assessment and quantification of current project performance
- Helps predict future performance based on trends.

EVM provides project management with objective, accurate and timely data for effective decision making

Policy References

OMB Circular A-11, Part 3; NPR 7120.5 Program/Project Management Processes and Requirements; Industry Guidelines, ANSI/EIA-748 Standard for EVM Systems

USA.gov Government Made Easy

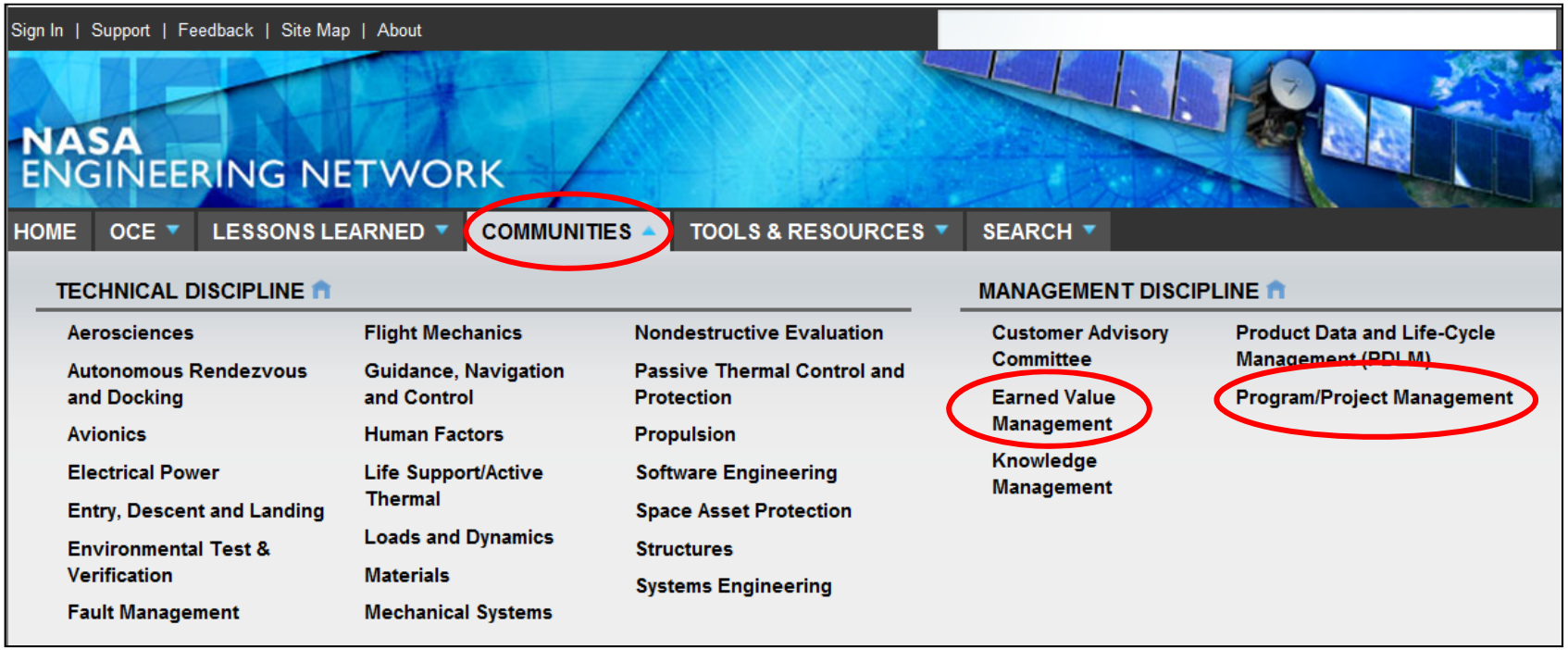
ExpectMore.gov

+ Freedom of Information Act
+ Budgets, Strategic Plans and Accountability Reports
+ The President's Management Agenda
+ NASA Privacy Statement, Disclaimer, and Accessibility Certification
+ Inspector General Hotline
+ Equal Employment Opportunity Data Posted Pursuant to the No Fear Act
+ Information-Dissemination Priorities and Inventories
+ NASA Safety Reporting System

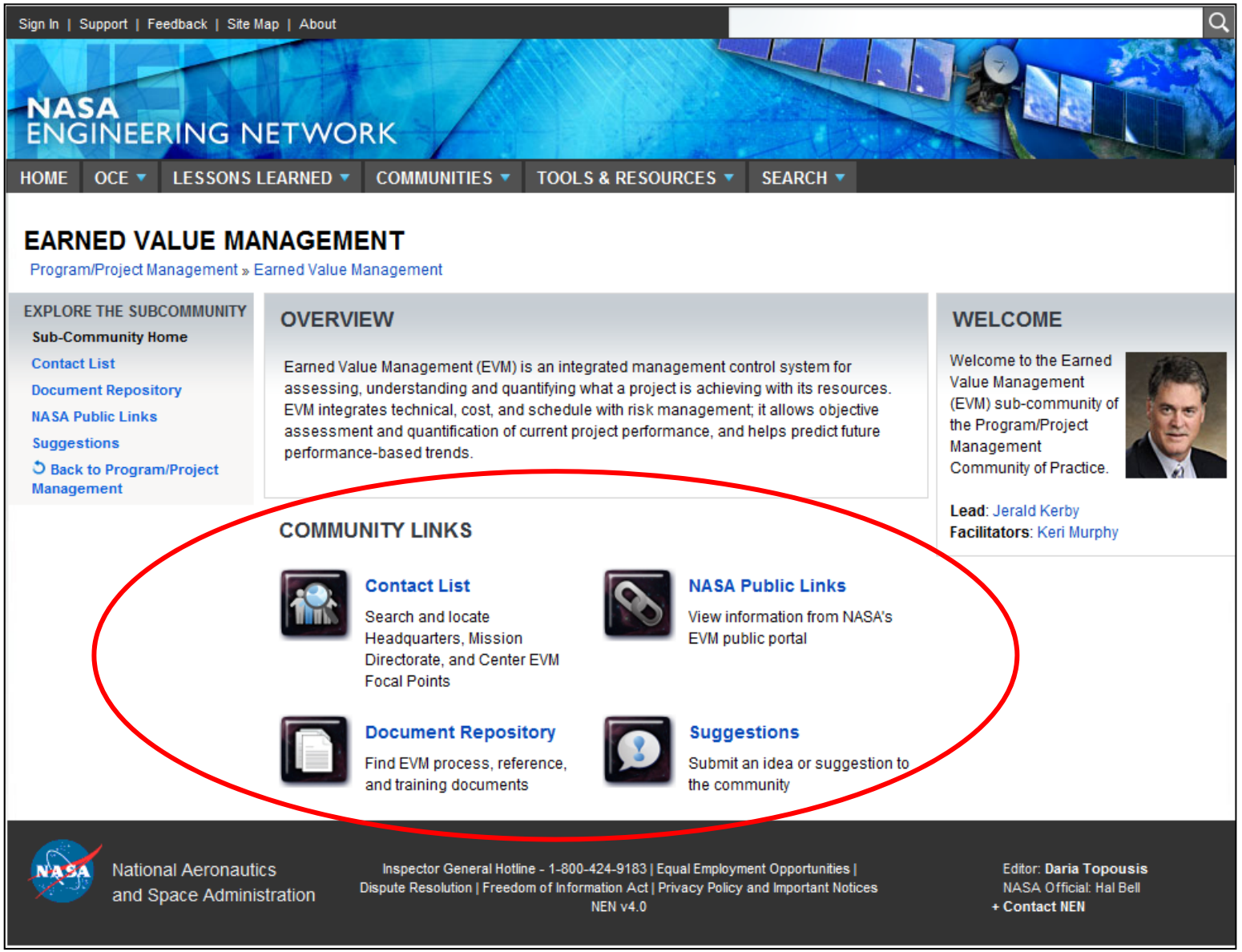
Curator: MITS
NASA Official: Jerald Kerby
Last Updated: January 22, 2010
+ Contact NASA
+ SiteMap

NASA Engineering Network https://nen.nasa.gov

NEN - NASA Community of Practice



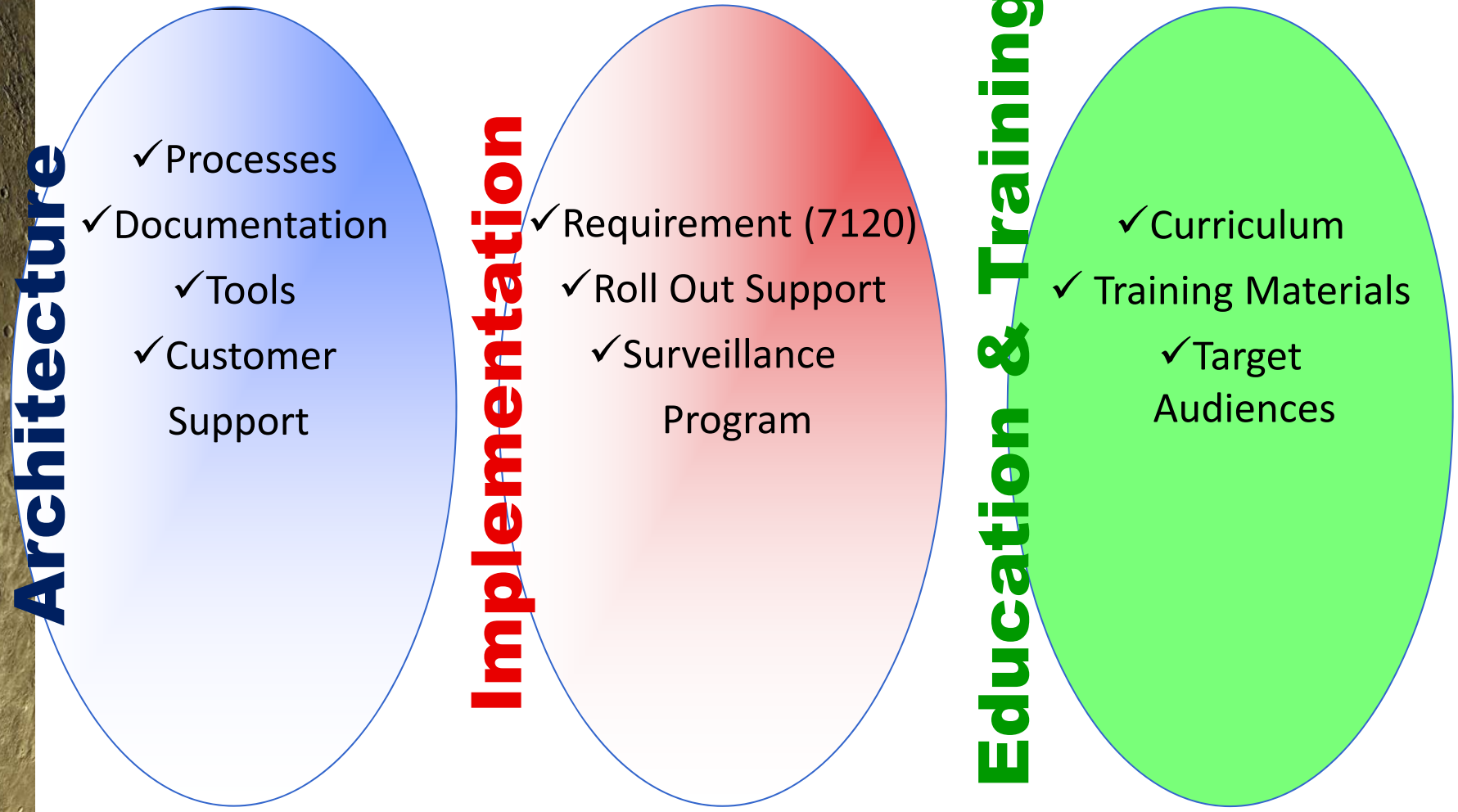
NEN - NASA EVM Community of Practice



Focus Areas in response to GAO EVM Recommendations

- Corrective action plans to focus on the following areas
  - Rollout of EVM Capability (NASA EVM Process)
  - Conduct Skills Assessment
  - Develop Change Management Plan
  - Strengthen EVM Surveillance
- NASA will periodically report to GAO on the progress that the Agency has made to the recommendations corrective action plan

Key Components of EVM Process



Everything is in place for implementation

Questions?