

National Aeronautics and Space Administration

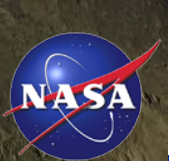
NASA Earned Value Management (EVM) Operational Environment

NDIA

**Jerald Kerby, NASA EVM Program Executive
2014**

evm.nasa.gov

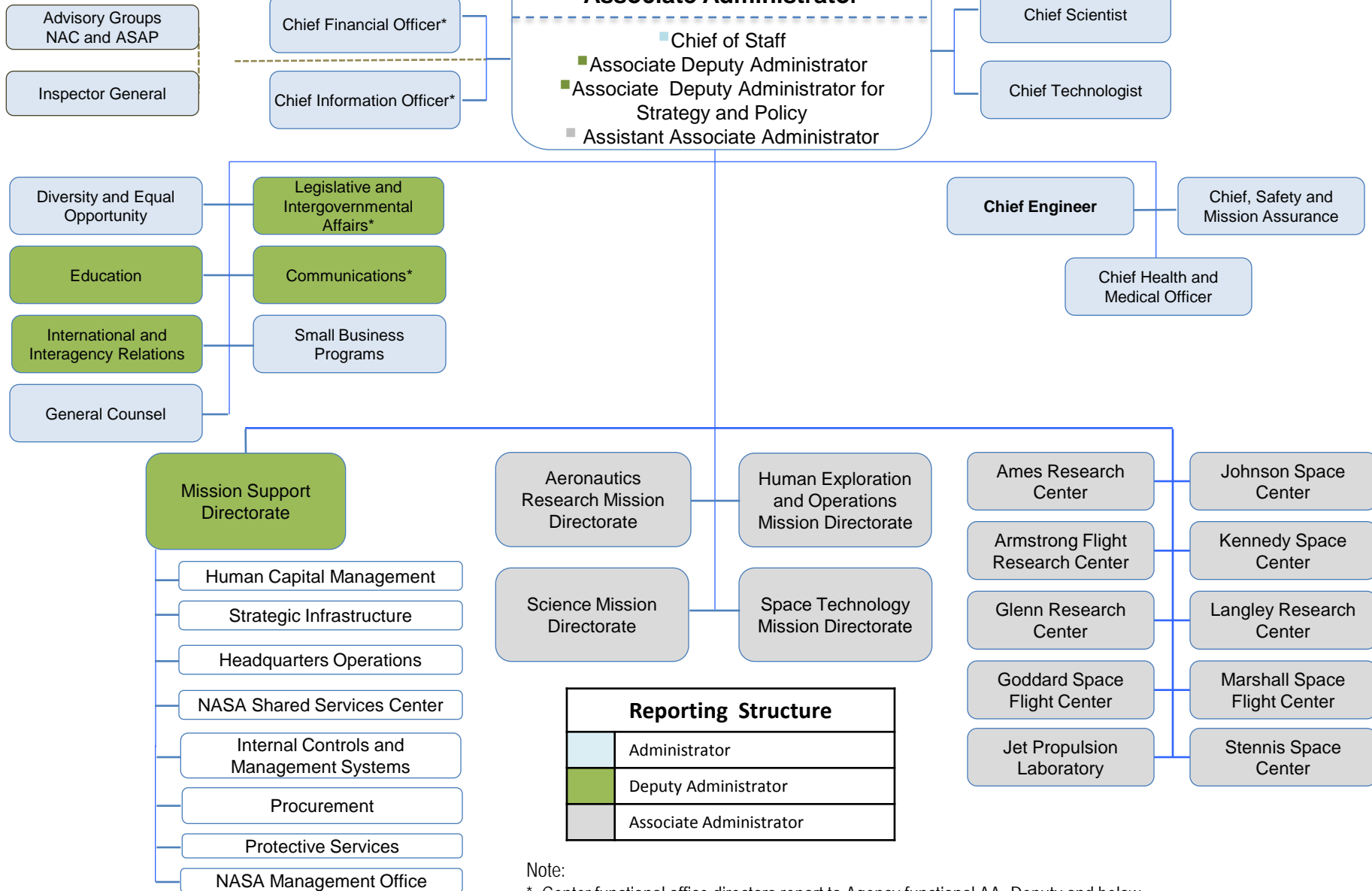




Outline

- NASA Organization Structure
- EVM Leadership, Roles and Responsibilities
- Policy and Processes
- EVM Goals/Partners
- EVM Capability
- NASA EVM Resources
- Focus Areas

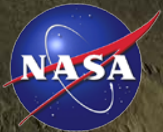
National Aeronautics and Space Administration



Reporting Structure	
	Administrator
	Deputy Administrator
	Associate Administrator

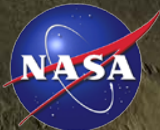
Note:

* Center functional office directors report to Agency functional AA. Deputy and below report to Center leadership.



NASA EVM Leadership





Roles and Responsibilities



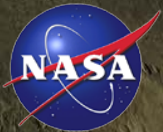
**Charles Bolden, Jr.
Administrator**

The Administrator leads the Agency and is accountable to the President for all aspects of the Agency's Mission, including establishing and articulating the Agency's vision, strategy, and priorities and overseeing successful implementation of supporting policies, programs, and performance assessments. All Technical and Institutional Authorities (Agency Chiefs) report to the Administrator.



**Robert M. Lightfoot, Jr.
Associate Administrator**

The Associate Administrator (AA) performs the duties and exercises the powers delegated by the Administrator and acts for the Administrator in the absence of the Administrator and Deputy Administrator. Responsible for integrating the technical and programmatic elements of the Agency; oversees the Agency's Centers, programs, and the Office of Evaluation; oversees the planning, directing, organization, and control of the Agency technical and programmatic operations, including establishing controls over Agency activities.

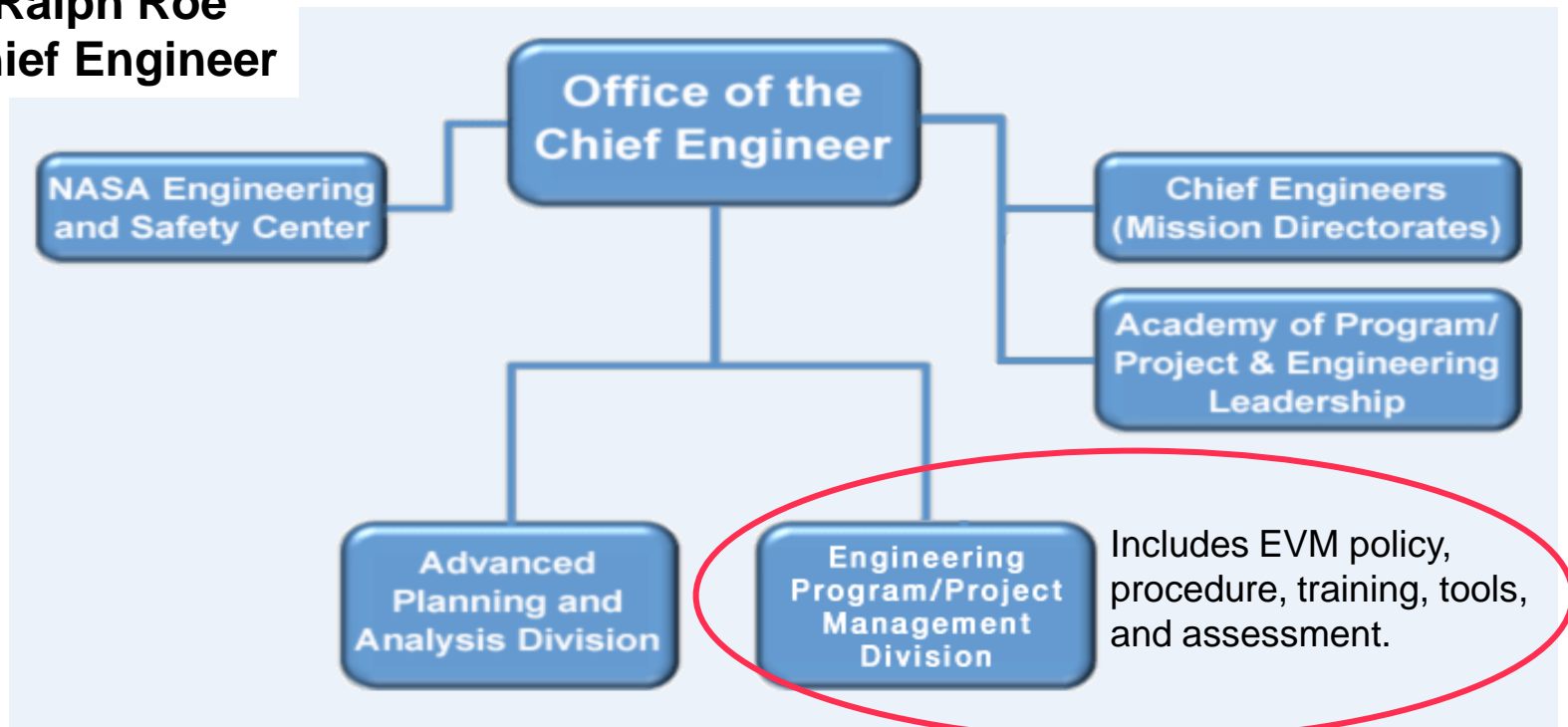


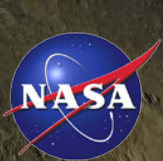
Office of the Chief Engineer (OCE)



Ralph Roe
Chief Engineer

The OCE is responsible for policy direction, oversight, and assessment for the NASA engineering and program management communities and serves as principal advisor to the Administrator and other senior officials on matters pertaining to the technical readiness and execution of NASA programs and projects.





Engineering Program/Project Management Division (EPPMD)

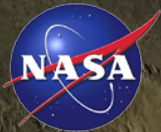
The EPPMD director reports directly to the NASA Chief Engineer. The division is responsible for:



Ellen Stigberg
Acting Director

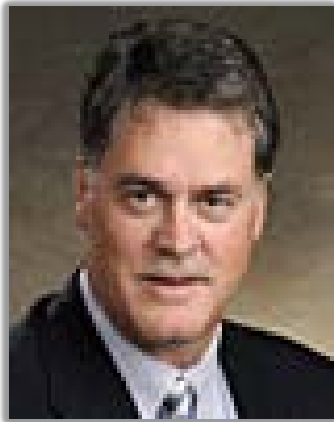
- Development of engineering and program and project management policy to include EVM
- Communicating policy and processes to the engineering and program/project community through the Engineering Management Board (EMB), Program Management Board (PMB), and the Program Management Council (PMC)
- All audit functions, including compliance audits
- Office of Safety and Mission Assurance coordination, including Safety and Mission Success Review (SMSR) activities
- Establishing a support system to ensure greater project success through better engineering and project management.

The EPPMD director leads the coordination and development of NASA Policy Directive (NPD) and NASA Procedural Requirements (NPRs) regarding program and project management to include EVM. NASA's system for program and project management is consistent with NASA's governance model, as described by NPD 1000.0A, NASA Governance and Strategic Management Handbook.



NASA EVM Program Executive (PE)

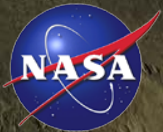
The NASA EVM PE supports the Director, EPPMD. He is responsible for:



Jerald Kerby
NASA EVM PE

- Process Owner for EVM
- NASA EVM Capability and maintenance (processes, procedures, tools, training, etc.)
- EVM Tools - Functional Ownership
- EVM System Reviews (Validation/Surveillance)
- Policy/Handbooks/Guides/Job Aids (Development & Maintenance)
- Training/Websites
- Chairperson, NASA EVM Focal Point Working Group (EVMWG)
- Co-chairperson, Civilian Agency/Industry Working Group (CAIWG)

Includes interface and communications with external organizations, e.g., GAO Experts Meeting, OMB, Department of Defense (DoD) EVM Focal Point, National Defense Industrial Association (NDIA), CAIWG, Project Management Institute, College of Performance Management).

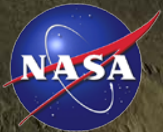


NASA Mission Directorates and Centers

Each NASA Center has a Director that reports to the AA. Responsible and accountable for all activities assigned to their Center, e.g., institutional activities; ensuring the proper planning for and assuring the proper execution of programs and projects assigned to the Center; and appointing an EVM Focal Point for their Center.

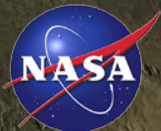
Each Mission Directorate has an Associate Administrator (MD AA) that reports to the AA. Responsible for managing the Directorate's program portfolios; defining, funding, evaluating and overseeing implementation of respective programs and projects; and accountable for mission safety and success for the programs and projects assigned to them. The MD AA appoints an EVM Focal Point for their directorate.





NASA EVM Focal Points

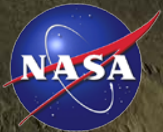
- The NASA EVM Focal Point Working Group (EVMWG) functions as an advisory group to the OCE and provides:
 - The basis for developing an integrated, consistent approach for implementing EVM throughout NASA
 - An open forum for the Focal Points to share their experiences and to develop a network of support within the NASA EVM community
- The EVM Focal Points serve as the Process Owner for EVM for the respective Mission Directorates, Centers and Headquarters Offices:
 - Develop and/or revise Center/Mission Directorate EVM policy documents in accordance with Agency policy
 - Coordinate implementation of policy, process, guidance, and tools
 - Provide EVM and related business systems/tools expert advice and advocacy to Centers, Program and Project Managers
 - Support in-house EVM implementation, provide surveillance support of EVM processes and documentation to ensure compliance with policy
 - Support building project control skills and competency by assessing EVM training needs and coordinating training



NASA EVM WG Points of Contact

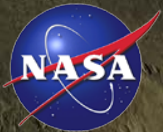
Headquarters			
Office of Chief Engineer	Jerald Kerby, Chair	256.544-3243	gerald.g.kerby@nasa.gov
Office of Chief Financial Officer	Brian Card	202.358.0743	brian.card@nasa.gov
Office of Chief Intelligence Officer	John Bosco	202.358.1352	John.f.bosco@nasa.gov
Office of Evaluation	Arnold Hill	202.358.0068	arnold.a.hill@nasa.gov
Procurement	Andrew O'Rourke	202.358.4560	andrew.orourke@nasa.gov
Mission Directorates			
Human Exploration and Missions	Cris Guidi	202.358.1777	cristina.guidi-1@nasa.gov
Science Missions	Gary Rawitscher	202.358.2509	gary.s.rawitscher@nasa.gov
Centers			
Ames Research	Thomas Paine	650.604.4943	thomas.c.paine@nasa.gov
Armstrong Flight Research	Patti Daws	661.276.2964	paricia.r.daws@nasa.gov
Glenn Research	Bob Sefcik	216.433.8445	robert.j.sefcik@nasa.gov
Goddard Space Flight	Steve Shinn	301.286.5894	stephen.a.shinn@nasa.gov
Jet Propulsion Lab	Cal Chambers	301.286.8096	calvin.r.chambers@nasa.gov
Johnson Space	Nancy Fleming	281.244.7205	nancy.fleming@nasa.gov
Kennedy Space	Kristen Kehrer, Deputy	321.867.3691	kristen.c.kehrer@nasa.gov
Langley Research	Dr. Barry Lazos	757.864.5731	barry.s.lazos@nasa.gov
Marshall Space Flight	Jerald Kerby	256.544.3243	gerald.g.kerby@nasa.gov
Stennis Space	Deborah Norton	228.688.1168	deborah.s.norton@nasa.gov

Source: NASA EVM Website, www.evm.nasa.gov



NASA EVM Requirements Overview

NASA Projects		
> \$50M	\$20M to \$50M	Less than \$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		



NASA EVM Requirements Hierarchy

Defines
"What"

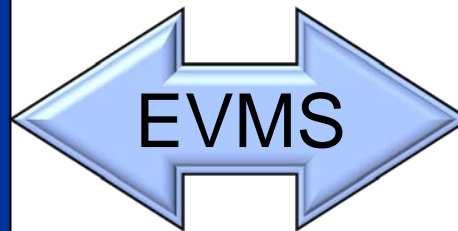
Authority / Requirements

- GPRA
- PMA
- OMB Circular A-11
- NASA Policy Directives (NPD)
- NASA Procedures (NPR) 7120
 - MPDs / MDs
- MPRs / Programs
- MWIs / Projects

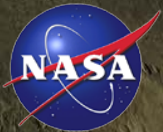
Defines
"How"

Handbooks / References

- ANSI/EIA 748
- PMI PMBOK
- NDIA PMSC EVMS Intent Guide
- EVM Capability Documentation
- NASA Schedule Management HB
 - IBR Handbook
 - WBS Handbook
- EVM Implementation Handbook

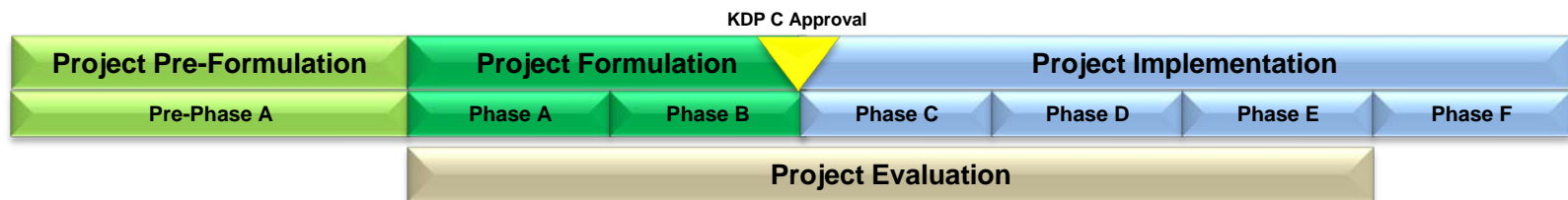


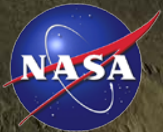
Forms the foundation for EVM and facilitates training, mentoring, tool development, assessment, and integration.



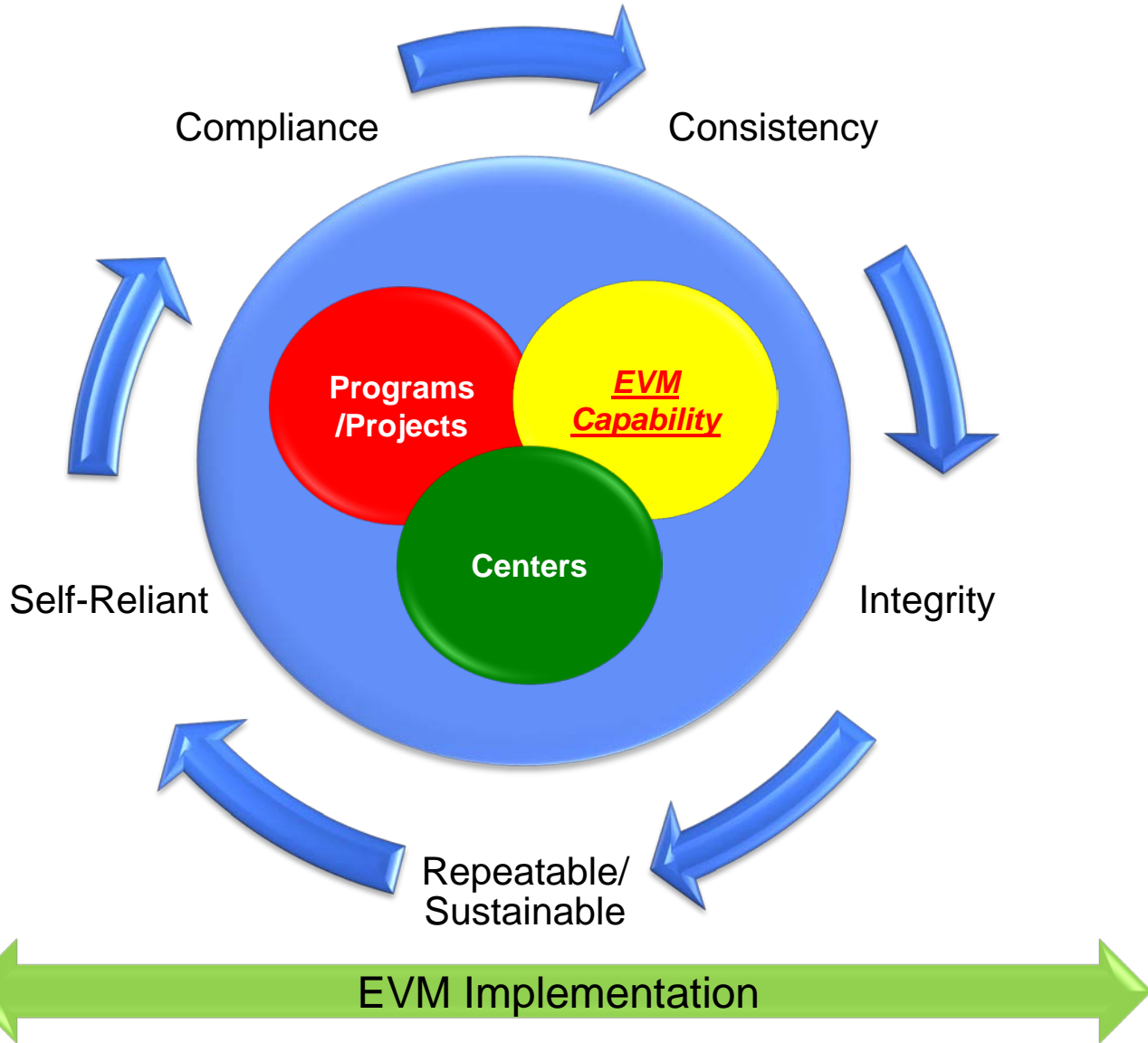
NASA Project Lifecycle and EVM Requirements

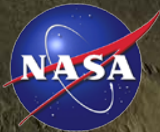
- NPR 7120.5 - NASA Projects (in-house) and contracts:
 - Planning begins during Formulation (Phases A & B)
 - EVM is applied at Implementation (Phases C and D) to projects with an estimated life cycle cost >\$20 million and to Phase E modifications, enhancements, or upgrades with an estimated cost > \$20 million.
 - EVM system complies with the guidelines in ANSI/EIA-748 and is described in the Project Plan (projects are encouraged to use the NASA EVM capability/processes to meet requirement).
 - EVM system requirements are flowed down to applicable suppliers (not Phase dependent) – See NASA FAR Supplement (NFS) 1834.2).
 - Contract Performance Report (CPR), Integrated Master Schedule (IMS), and a Work Breakdown Structure (WBS) are required deliverables with the appropriate data requirements descriptions (DRDs) included in the contract and/or agreement.
 - The project's preliminary Performance Measurement Baseline (PMB) is established in Phase B in preparation for Key Decision Point (KDP) C (Phase C) approval and is assessed during a review of the integrated baseline for the project.





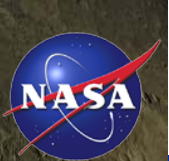
NASA EVM Goals/Partners





NASA EVM Capability

- 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, training, etc. (NASA/SP-2013-3704, EVM System Description)
- Tested through two pilot projects and assessed by independent Peer Review Team with representation from each Mission Directorate and Center (e.g., self assessment/validation)
- Monitored by senior level Agency Steering Committee represented by each Mission Directorate and Center
- Approved by the Agency Project Management Council (APMC):
 - Initial (phased) rollout: Space Launch System (SLS) and Ice, Cloud & Land Evaluation Satellite-2 (ICESat-2)
 - Focus on EVM flow-down to contracts across the Agency
 - Test EVM implementation (EVM surveillance) by leveraging ongoing project reviews and data requirements (e.g., life cycle reviews and 7120 Requirements Compliance Surveys)



Key Components of EVM Capability

Architecture

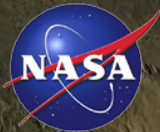
- ✓ Processes
- ✓ Documentation
 - ✓ Tools
- ✓ Customer Support

Implementation

- ✓ Requirement (7120)
- ✓ Roll Out Support
- ✓ Surveillance Process

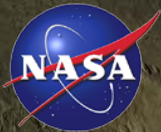
Education & Training

- ✓ Curriculum
- ✓ Training Materials
 - ✓ Target Audiences



NASA EVM Resources

- NASA EVM Focal Point Working Group
 - One member (appointed by each Center Director) from each NASA Center, each Mission Directorate (MD), the Office of the Controller (OCFO), and key HQ Mission Support Offices (e.g., Procurement)
 - EVM consistency and coordination for NASA
- NASA EVM Website www.evm.nasa.gov
 - Contains EVM data requirements, policy and procedures, and NFS procurement clauses
 - Current list of NASA EVM Focal Points
 - Also has other EVM related information and many links to other EVM websites
- NASA EVM Community of Practice (internal NASA use)
 - Document Repository (Training, EVM System Description, EVM Process Storyboards and Narratives, etc.)
 - Lessons Learned



NASA EVM Website www.evm.nasa.gov



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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

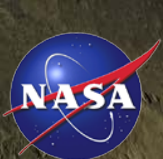


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Curator: MITS
NASA Official: Jerald Kerby
Last Updated: January 22, 2010
+ Contact NASA
+ SiteMap



Internal - NASA Engineering Network (NEN)

<https://nen.nasa.gov>

NASA EVMS Operational Environment



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Introducing The New Document Repository Interface

Submitted by NASA Engineering Network on May 09, 2014

The content freeze is now lifted and all operations have returned to normal. The NASA Engineering Network has successfully transitioned to a new integrated document repository system.

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[Submit New](#)

WELCOME

Welcome to the NASA Engineering Network, where engineers may access Lessons Learned; interact with their discipline's Technical Fellow, subject-matter experts, and practitioners through Communities of Practice; search many NASA repositories of interest; and find tools and resources.



COMMUNITY OF PRACTICE

Avionics



Avionics covers a wide variety of electrical/electronic sub-disciplines, including command & data handling systems; communication & tracking systems; ground & flight; data networks; avionics hardware integration and test; avionics electrical ground support equipment;...

Oscar Gonzalez

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SPOTLIGHT

OCE Events: May 2014



22- Baseline Performance Review

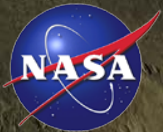
NASA Knowledge Map



This tool serves as a springboard to enable you to find what you don't know, share what you do know, or discover something new.

DESIGN PRINCIPLES

To promote excellence in design and avoid known risks, top level design principles and design requirements from across the Agency are listed here.



NEN - NASA Community of Practice (CoP)

NASA EVMS Operational Environment

NASA ENGINEERING NETWORK

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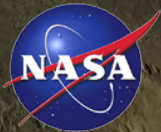
TECHNICAL DISCIPLINE ↑

Aerosciences	Guidance, Navigation and Control	Propulsion
Autonomous Rendezvous and Docking	Human Factors	Small Spacecraft
Avionics	Life Support/Active Thermal	Software Design, Development, Test, and Evaluation
Electrical Power	Loads and Dynamics	Software Engineering
Entry, Descent and Landing	Materials	Space Asset Protection
Environmental Test & Verification	Mechanical Systems	Space Radiation
Fault Management	Nondestructive Evaluation	Structures
Flight Mechanics	Passive Thermal Control and Protection	Systems Engineering

MANAGEMENT DISCIPLINE ↑

- [Earned Value Management](#)
- Knowledge Management
- Product Data and Life-Cycle Management (PDLM)
- [Program/Project Management](#)

☒ CLOSE



NEN - NASA EVM CoP

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EARNED VALUE MANAGEMENT

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- [Suggestions](#)
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OVERVIEW

Earned Value Management (EVM) is an integrated management control system for assessing, understanding and quantifying what a project is achieving with its resources. EVM integrates technical, cost, and schedule with risk management; it allows objective assessment and quantification of current project performance, and helps predict future performance-based trends.



Contact List
Search and locate Headquarters, Mission Directorate, and Center EVM



Document Repository
Find EVM process, reference, and training documents



NASA Public Links
View information from NASA's EVM public portal



Suggestions
Submit an idea or suggestion to the community

WELCOME

Welcome to the Earned Value Management (EVM) sub-community of the Program/Project Management Community of Practice.



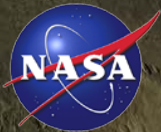
Lead: [Jerald Kerby](#)
Facilitators: [Keri Murphy](#)



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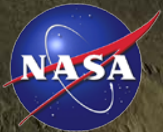
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Editor: [Daria Topousis](#)
NASA Official: [Hal Bell](#)
+ [Contact NEN](#)



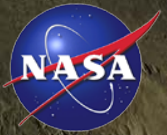
Current Focus Areas

- Phased rollout of EVM Capability
 - ✓ SLS, ICESat-2 and GSDO
 - ✓ Mature EVM capability; Identify/support new projects
- Improve EVM skills
 - ✓ Skills Gap Assessment
 - ✓ Leverage Agency Program Planning and Control (PP&C) Improvement Initiative
 - ✓ EVM Training Program improvements
- Enhance EVM commitment and communication at all management levels while reducing operational impact
 - ✓ Change Management Plan
- Improve EVM implementation on contracts
 - ✓ EVM requirements included in procurement guides
 - ✓ Implementing EVM on NASA Contracts training



Current Focus Areas cont'd

- Strengthening EVM surveillance to improve reliability of data and management use
 - ✓ NASA/SP-2012-599, EVM Implementation Handbook
 - ✓ NASA EVM Surveillance Job Aids
 - wInsight Data Validity Report Tool
 - Schedule Test & Assessment Tool (STAT)
 - ✓ Approach aligning EVM system surveillance with Independent Program Assessment Office life cycle reviews
 - ✓ EVM surveillance in 7120 Requirements Compliance Surveys
- NASA validation
 - Applied Physics Laboratory EVM System (Solar Probe Plus contract) – Nov 2014
 - Southwest Research Institute (SwRI) – Apr 2015
- Transition to the DoD Integrated Program Management Report (IPMR) Data Item Description (DID) for EVM and IMS reporting



EVM Contact Information

Jerald Kerby, Agency EVM Program Executive

Office of Strategic Analysis & Communications (OSAC)
CS40 - Performance & Capabilities Management Office

gerald.g.kerby@nasa.gov

(256) 544-3243