Benefits of Using Data Driven Metrics

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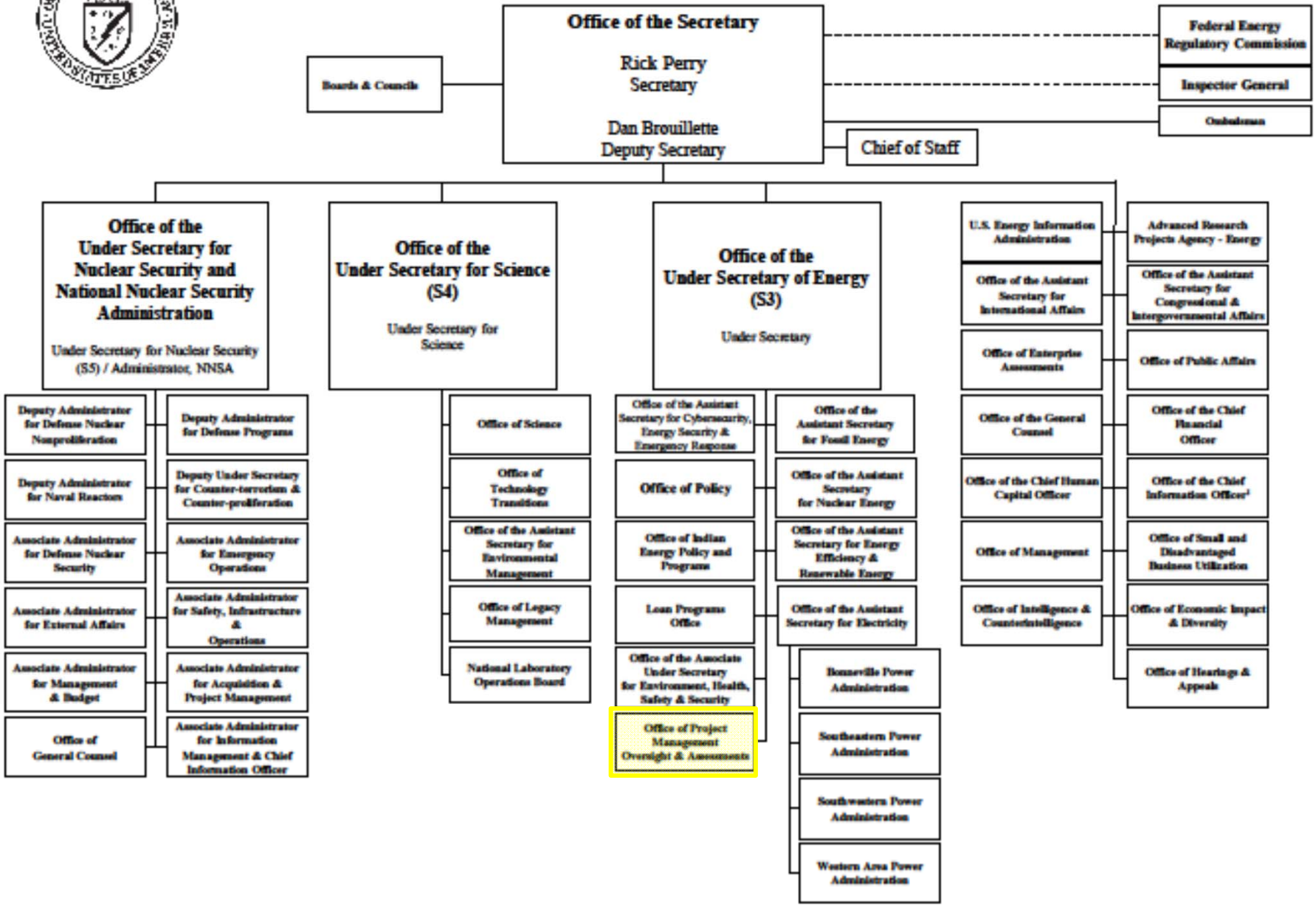
Learning Objectives

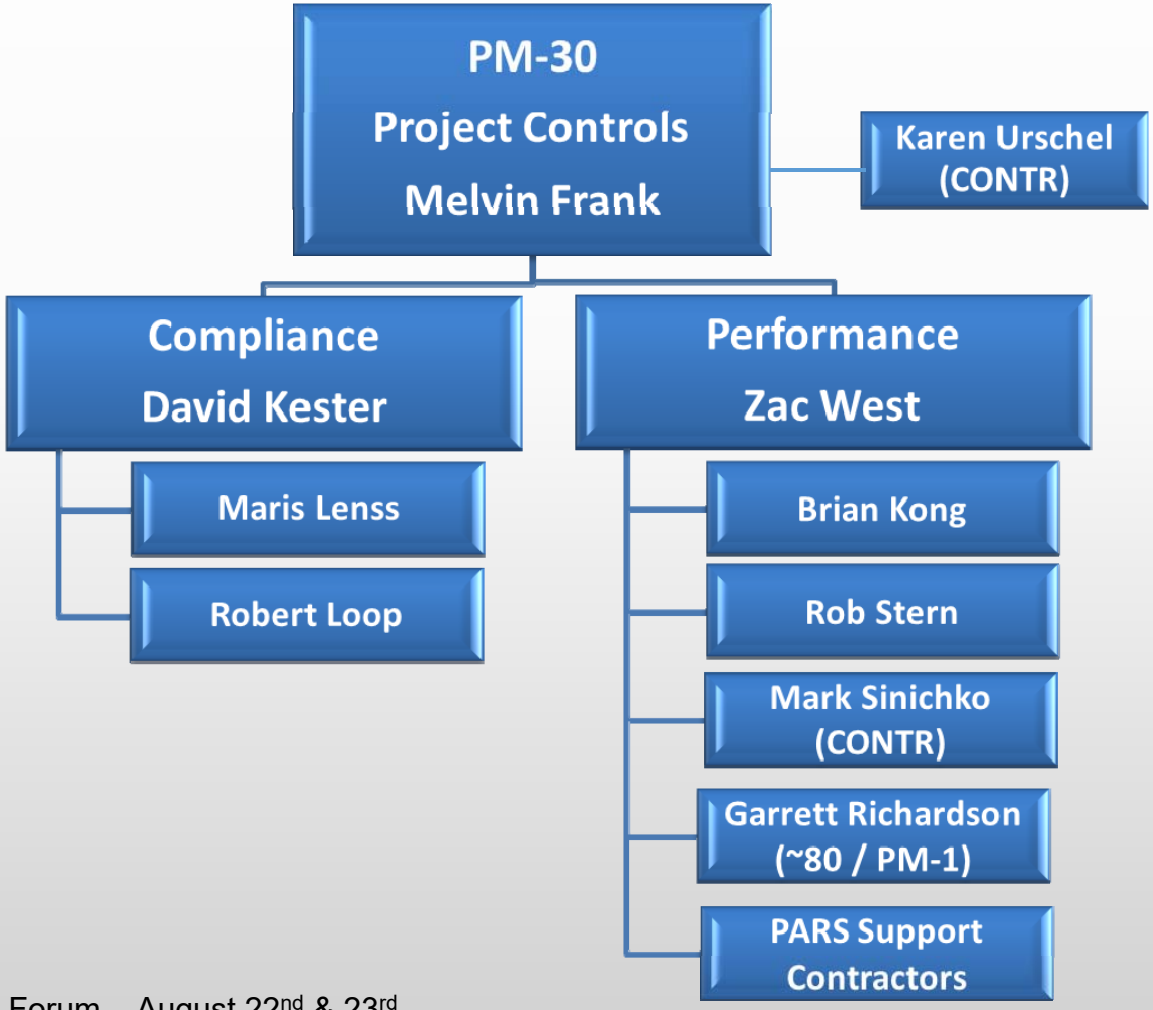
- Understand methods to improve the EVMS Compliance Process
- Engage with key stakeholders
  - Government and Contractor
- Improve consistency of interpretation via identifying attributes and tests
- Automate where possible to streamline process
- Focus on making the outcome beneficial to both parties

DEPARTMENT OF ENERGY

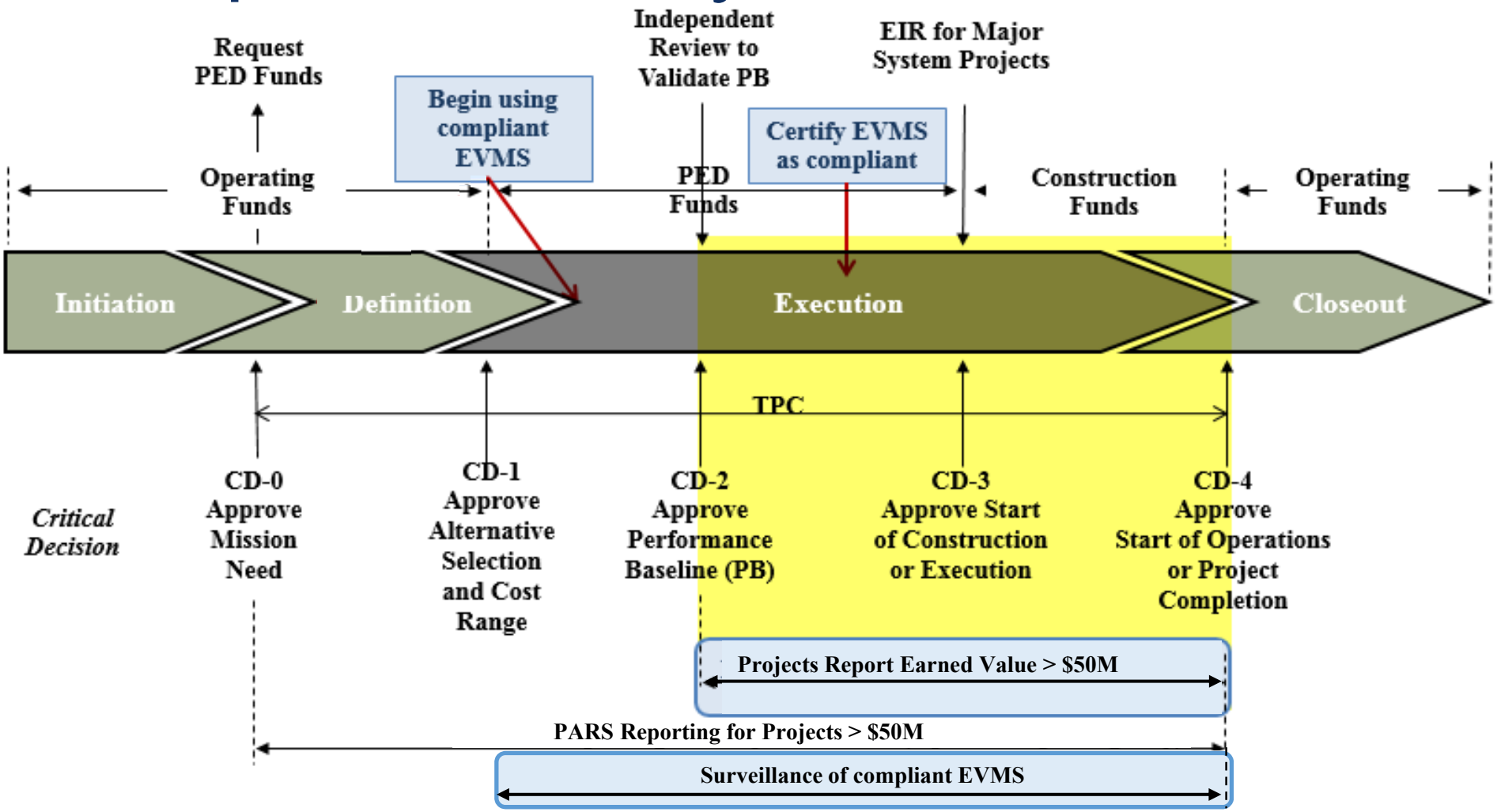


https://www.energy.gov/leadership/organization-chart

PM-30 Organization



Integrated EVM / PM Acquisition Lifecycle



Typical DOE Acquisition Management System for Line Item Capital Asset Projects

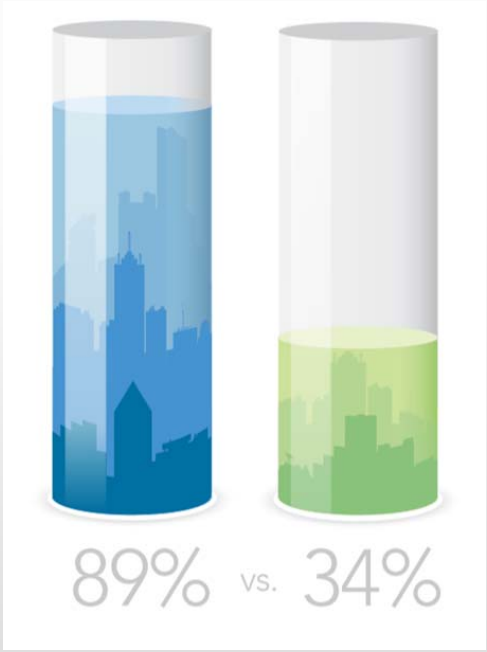
EVM Implementation – General Thoughts

- The need remains for a discussion on how the EVMS project controls process integrates with the project delivery process
  - Per DOE O 413.3B Project Delivery requires the implementation of an integrated management system
  - For projects >$100M the certified management system (EVMS) must integrate the key project components of scope, schedule, budget, resources, and risk
  - Contractors have the flexibility to develop and implement effective management systems tailored to meet their respective needs
  - Any differences in approach for EVMS implementation during the project's life-cycle should be addressed as part of the EVM System Description

EVM Implementation – General Thoughts

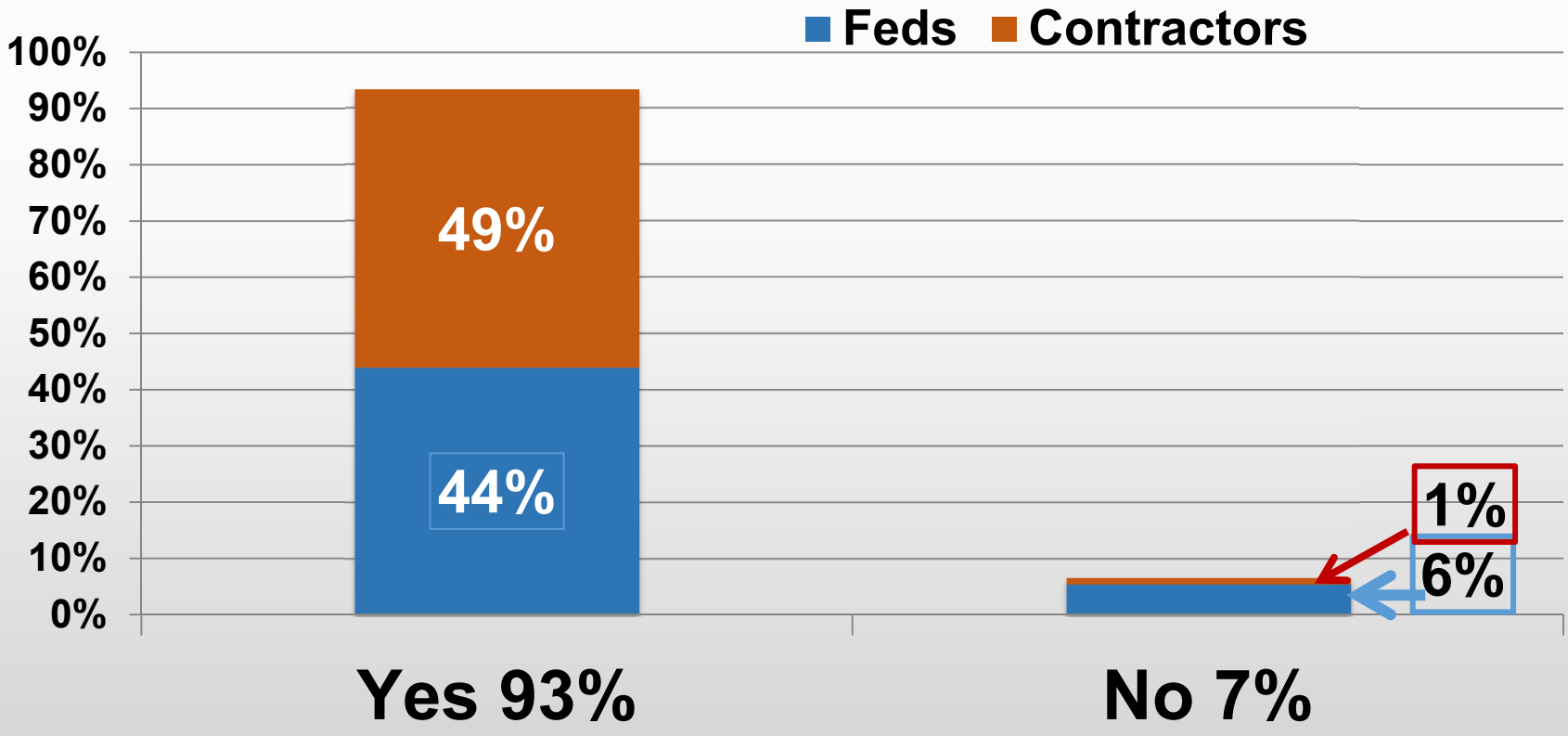
- Projects are 2.5 times more successful and waste 13 times less money when proven project management practices are used.
  - PMI Pulse of the Profession 2016

- Earned Value Management (EVM) has proven itself to be one of the most effective performance measurement and feedback tools for managing projects.
  - PMI 2005



Earned Value Management Systems
– Survey Says –

Do EIA-748 compliant EVM Systems provide data to make management decisions and forecasts?



"We are reminded by the work of Dr. W. E. Deming, the father of modern quality management, in which he demonstrated that the vast majority of quality problems are rooted in processes—ignored, flawed, or misunderstood by the worker, not in the workers themselves. Clear process definition, documentation, and accompanying roles and responsibilities are vital to assuring that EVMS works as intended and compliant with ANSI Standard 748."

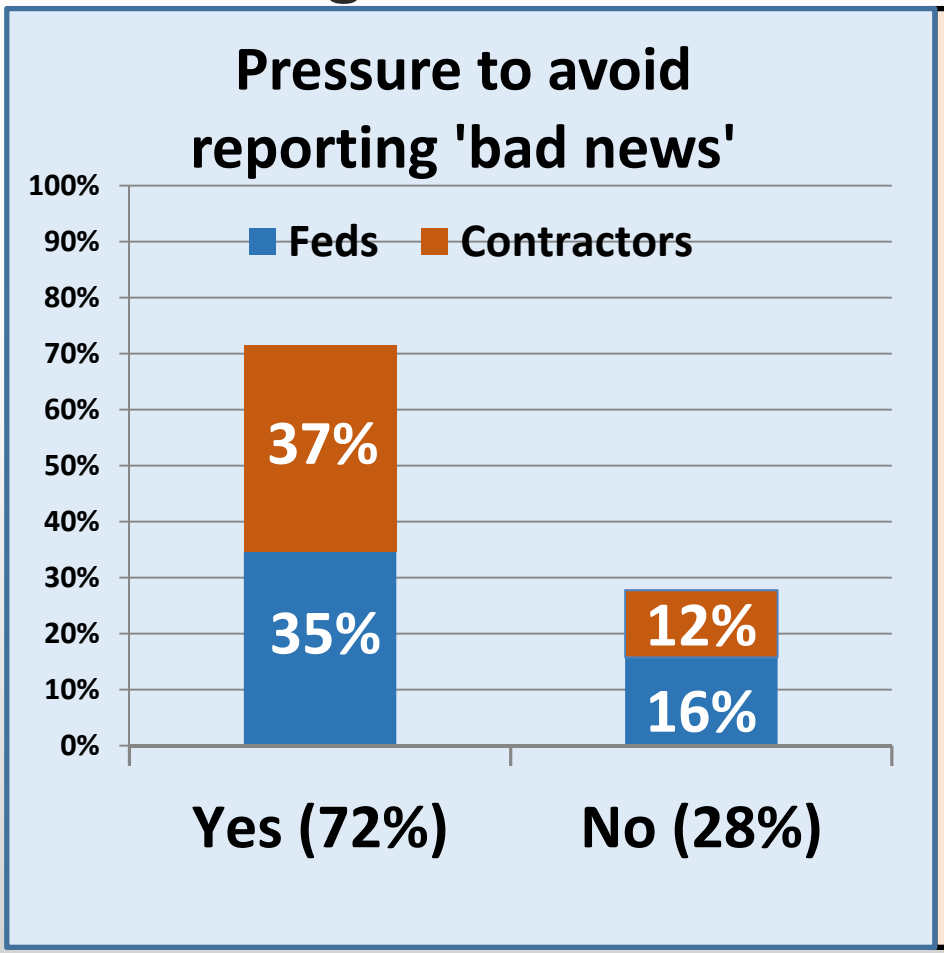
– Brodkorb, R. (2011). The truth about preparedness for any EVMS assessment by others. Paper presented at PMI® Global Congress 2011—North America, Dallas, TX.

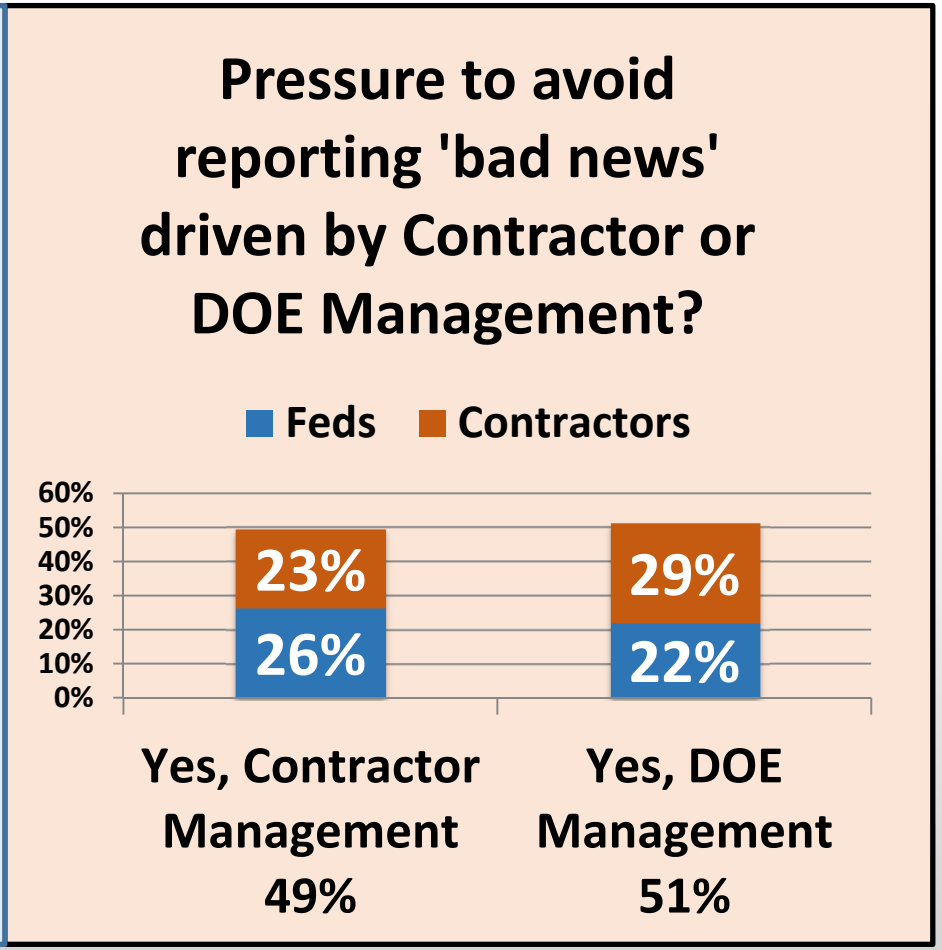
EVM Implementation – General Thoughts

- Degree of Acceptance
  - The EVM concept is perceived to be useful across industries
  - When implemented properly, the benefits outweigh the costs
  - There is room for improvement
  - People using EVMS need to better understand its purpose, capabilities, and limitations
  - The expertise of those responsible for implementing EVMS vary considerably

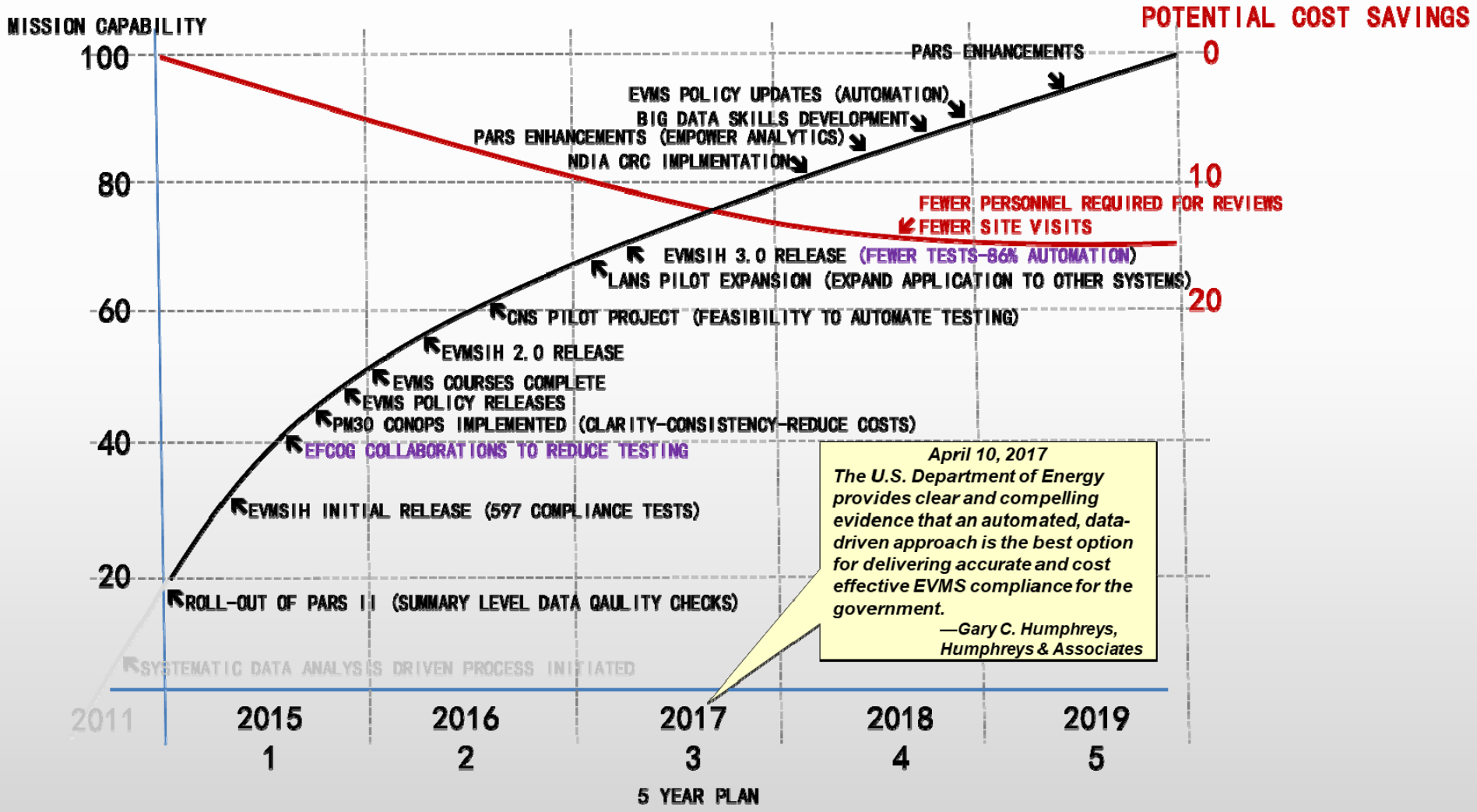
Earned Value Management Systems
– Survey Says –

It is all good news until it isn't . . .





PM-30 Roadmap



Challenges When Invoking Change

"*All great changes are preceded by chaos*." —Deepak Chopra

- Just because most stakeholders agree we need consistency, it isn't easy to achieve. There will be outliers.
- Consistency requires commitment and fear of commitment impedes the process.
- Approach and communication is everything.
  - Who and How matters
- Nothing is possible without authority and management buy-in…interested in solutions, willing to commit.
- The Goal: Cost effective/efficient use of EVMS

Next Steps

- Decision: Align with a Proven Model
  - Contractor ownership / Customer input
    - NDIA IPMD Guides are a respected source in the EVM Community
- Partnering with Key Stakeholders
  - Energy Facility Contractors Group (EFCOG) and DOE
- Move to a more consistent alignment with the referenced NDIA documents (Intent Guide, PASEG primarily)
  - Provide EFCOG and DOE comments to those updates
    - Reflect unique approach or consideration relevant to DOE business
      - Construction of complex facilities, remediation (de-construction), life extension projects
      - Not to reinvent but should there be only one comprehensive guide or expand to complementary guides

Anatomy of a Contractor EVMS – Genius of EVMS

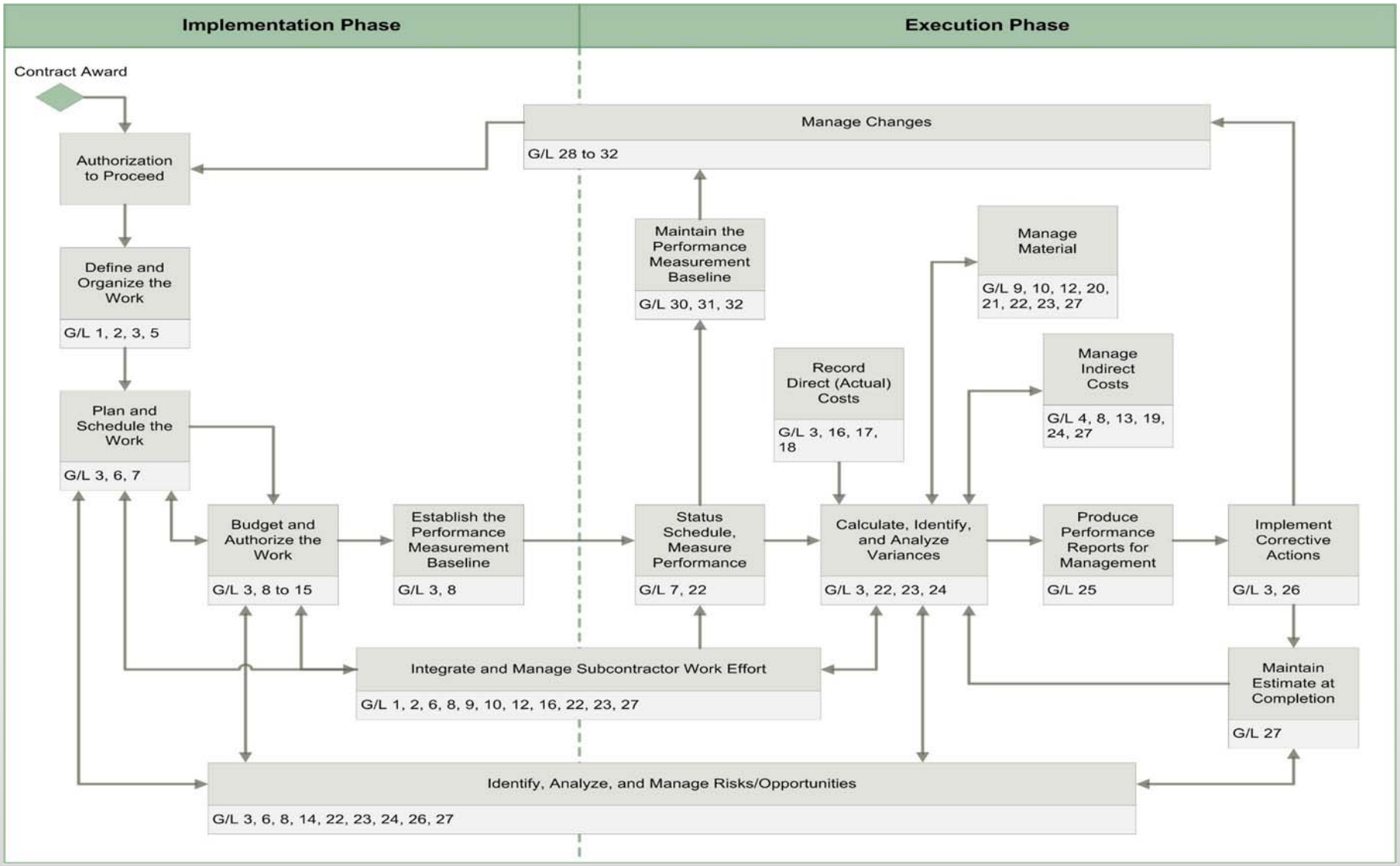
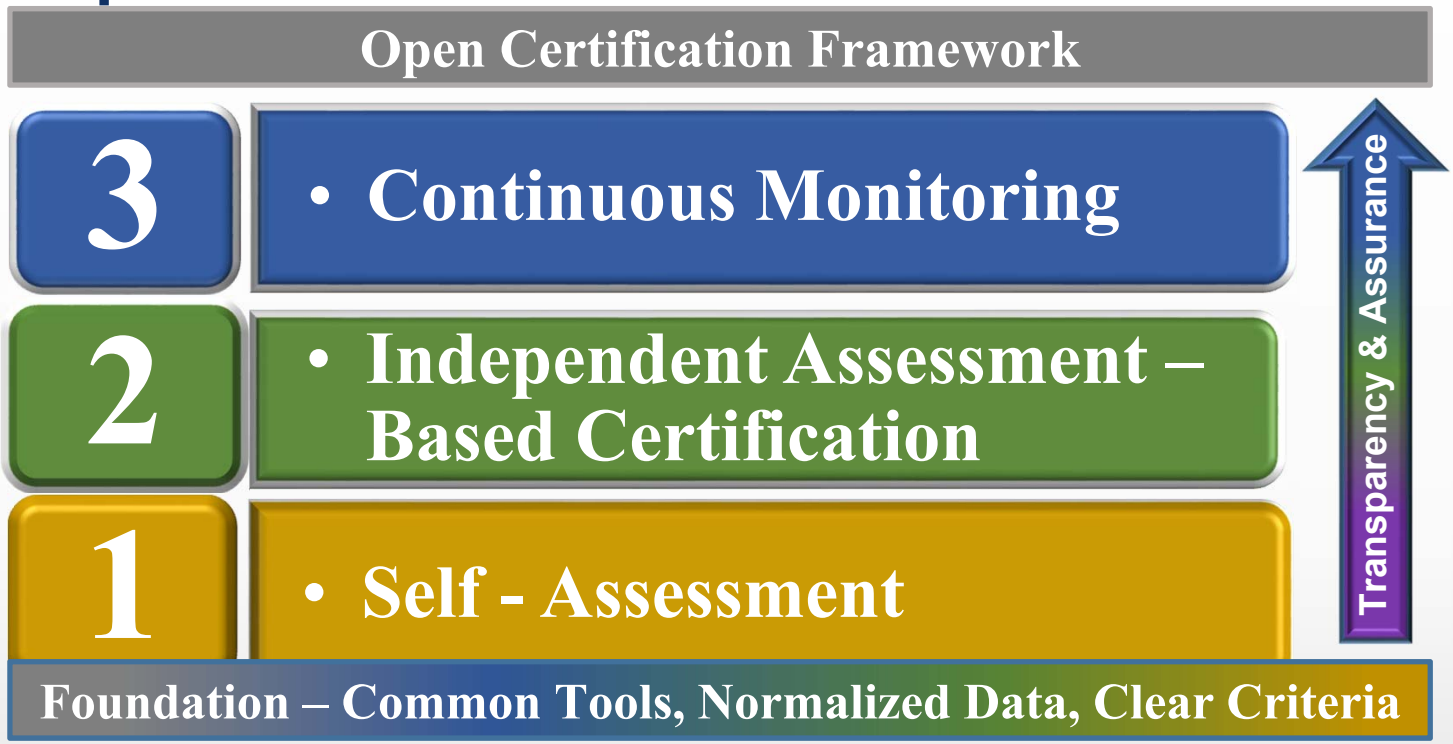


Image from the NDIA IPMD EVMS Guideline Scalability Guide, Revision 1, November 2016

Open Certification Framework

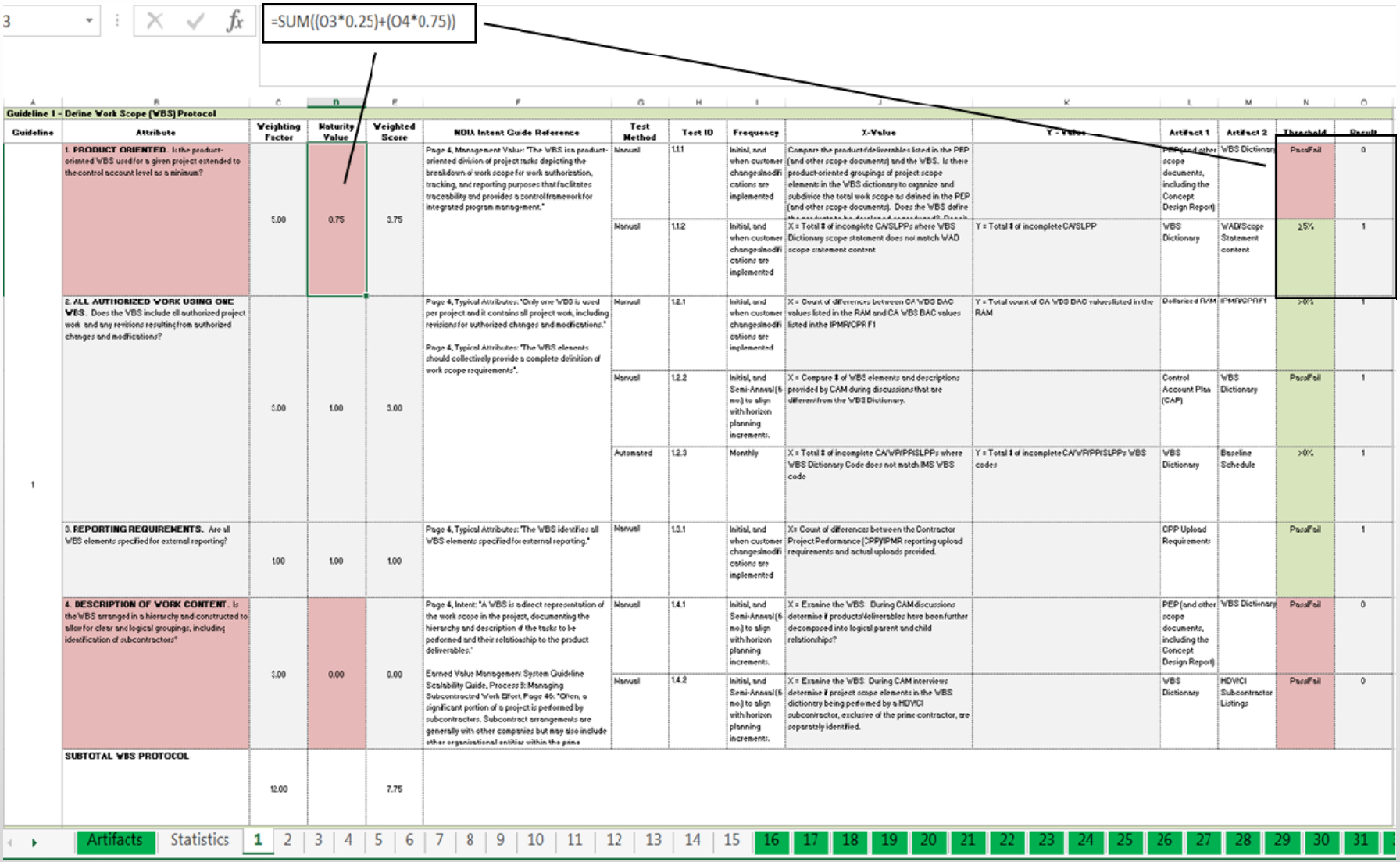


- **Level One (Self-Assessment)**: Requires the release and publication of due diligent self-assessment, against EVMS guidelines.
- **Level Two (Attestation):** Requires the release data and publication of available results of an assessment carried out by an independent third party based on EVMS guidelines.
- **Level Three (Ongoing Monitoring Certification)**: Requires the release and publication of results related to EVMS guidelines.
- **The increase in Transparency and Assurance is based from the foundation of having common tools, evaluating normalized data, against a clear criteria.**

EVM Compliance Reference Checklist

- EVMS compliance preparedness includes development of a cross-reference matrix mapping the sections of the EVMS Description to the 32 EIA-748 Guidelines
  - Greatly assists the compliance process and serves to assure that all relevant EIA-748 requirements are addressed through documented processes and artifacts

Achieving Consistency of Interpretation by Defining Attributes and Tests



Guideline	Attribute	Weighting Factor	Maturity Value	Weighted Score	NDIA Intent Guide Reference	Test Method	Test ID	Frequency	X-Value	Y - Value	Artifact 1	Artifact 2	Threshold	Result
Guideline 1 – Define Work Scope (WBS) Protocol														
1	1. **PRODUCT ORIENTED.** Is the product-oriented WBS used for a given project extended to the control account level as a minimum?	5.00	0.75	3.75	Page 4, Management Value: "The WBS is a product-oriented division of project tasks depicting the breakdown of work scope for work authorization, tracking, and reporting purposes that facilitates traceability and provides a control framework for integrated program management."	Manual	1.1.1	Initial, and when customer changes/modifications are implemented	Compare the product/deliverables listed in the PEP (and other scope documents) and the WBS. Is there product-oriented groupings of project scope elements in the WBS dictionary to organize and subdivide the total work scope as defined in the PEP (and other scope documents). Does the WBS define		PEP (and other scope documents, including the Concept Design Report)	WBS Dictionary	Pass/Fail	0
						Manual	1.1.2	Initial, and when customer changes/modifications are implemented	X = Total # of incomplete CA/SLPPs where WBS Dictionary scope statement does not match WAD scope statement content	Y = Total # of incomplete CA/SLPP	WBS Dictionary	WAD/Scope Statement content	≥5%	1
	2. **ALL AUTHORIZED WORK USING ONE WBS.** Does the WBS include all authorized project work and any revisions resulting from authorized changes and modifications?	3.00	1.00	3.00	Page 4, Typical Attributes: "Only one WBS is used per project and it contains all project work, including revisions for authorized changes and modifications." Page 4, Typical Attributes: "The WBS elements should collectively provide a complete definition of work scope requirements".	Manual	1.2.1	Initial, and when customer changes/modifications are implemented	X = Count of differences between CA WBS BAC values listed in the RAM and CA WBS BAC values listed in the IPMR/CPR F1	Y = Total count of CA WBS BAC values listed in the RAM	Delivered RAM	IPMR/CPR F1	>0%	1
						Manual	1.2.2	Initial, and Semi-Annual (6 mo.) to align with horizon planning increments.	X = Compare # of WBS elements and descriptions provided by CAM during discussions that are different from the WBS Dictionary.		Control Account Plan (CAP)	WBS Dictionary	Pass/Fail	1
						Automated	1.2.3	Monthly	X = Total # of incomplete CA/WP/PP/SLPPs where WBS Dictionary Code does not match IMS WBS code	Y = Total # of incomplete CA/WP/PP/SLPPs WBS codes	WBS Dictionary	Baseline Schedule	>0%	1
	3. **REPORTING REQUIREMENTS.** Are all WBS elements specified for external reporting?	1.00	1.00	1.00	Page 4, Typical Attributes: "The WBS identifies all WBS elements specified for external reporting."	Manual	1.3.1	Initial, and when customer changes/modifications are implemented	X= Count of differences between the Contractor Project Performance (CPP)/IPMR reporting upload requirements and actual uploads provided.		CPP Upload Requirements		Pass/Fail	1
	4. **DESCRIPTION OF WORK CONTENT.** Is the WBS arranged in a hierarchy and constructed to allow for clear and logical groupings, including identification of subcontractors?	3.00	0.00	0.00	Page 4, Intent: "A WBS is a direct representation of the work scope in the project, documenting the hierarchy and description of the tasks to be performed and their relationship to the product deliverables." Earned Value Management System Guideline Scalability Guide, Process 9: Managing Subcontracted Work Effort, Page 46: "Often, a significant portion of a project is performed by subcontractors. Subcontract arrangements are generally with other companies but may also include other organizational entities within the prime	Manual	1.4.1	Initial, and Semi-Annual (6 mo.) to align with horizon planning increments.	X = Examine the WBS. During CAM discussions determine if products/deliverables have been further decomposed into logical parent and child relationships?		PEP (and other scope documents, including the Concept Design Report)	WBS Dictionary	Pass/Fail	0
						Manual	1.4.2	Initial, and Semi-Annual (6 mo.) to align with horizon planning increments.	X = Examine the WBS. During CAM interviews determine if project scope elements in the WBS dictionary being performed by a HDWCI subcontractor, exclusive of the prime contractor, are separately identified.		WBS Dictionary	HDWCI Subcontractor Listings	Pass/Fail	0
	SUBTOTAL WBS PROTOCOL	12.00		7.75										

Artifacts | Statistics | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31

Data Driven EVMS Compliance

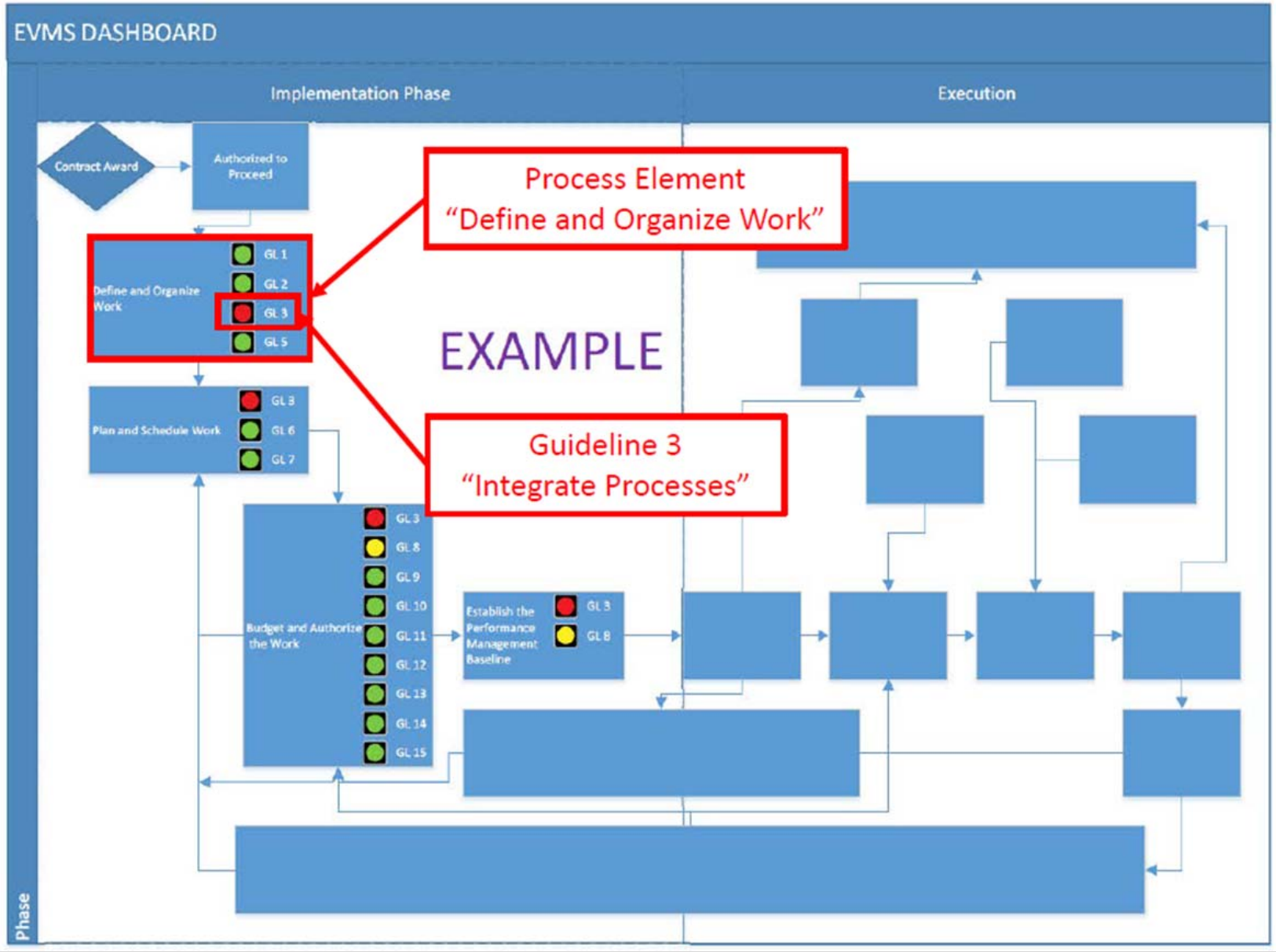
- Smarter EVMS rethinks the way in which EIA-748 compliance can be performed to simultaneously test the reliability of core management processes and analyze project performance
- Data-driven compliance to help predict when and where issues will occur
- Targeted compliance is driven by data and emerging issues, not by the calendar
- Consistent application regardless of EVMS specialist
- Automate tests whenever practical

PARS Development Efforts

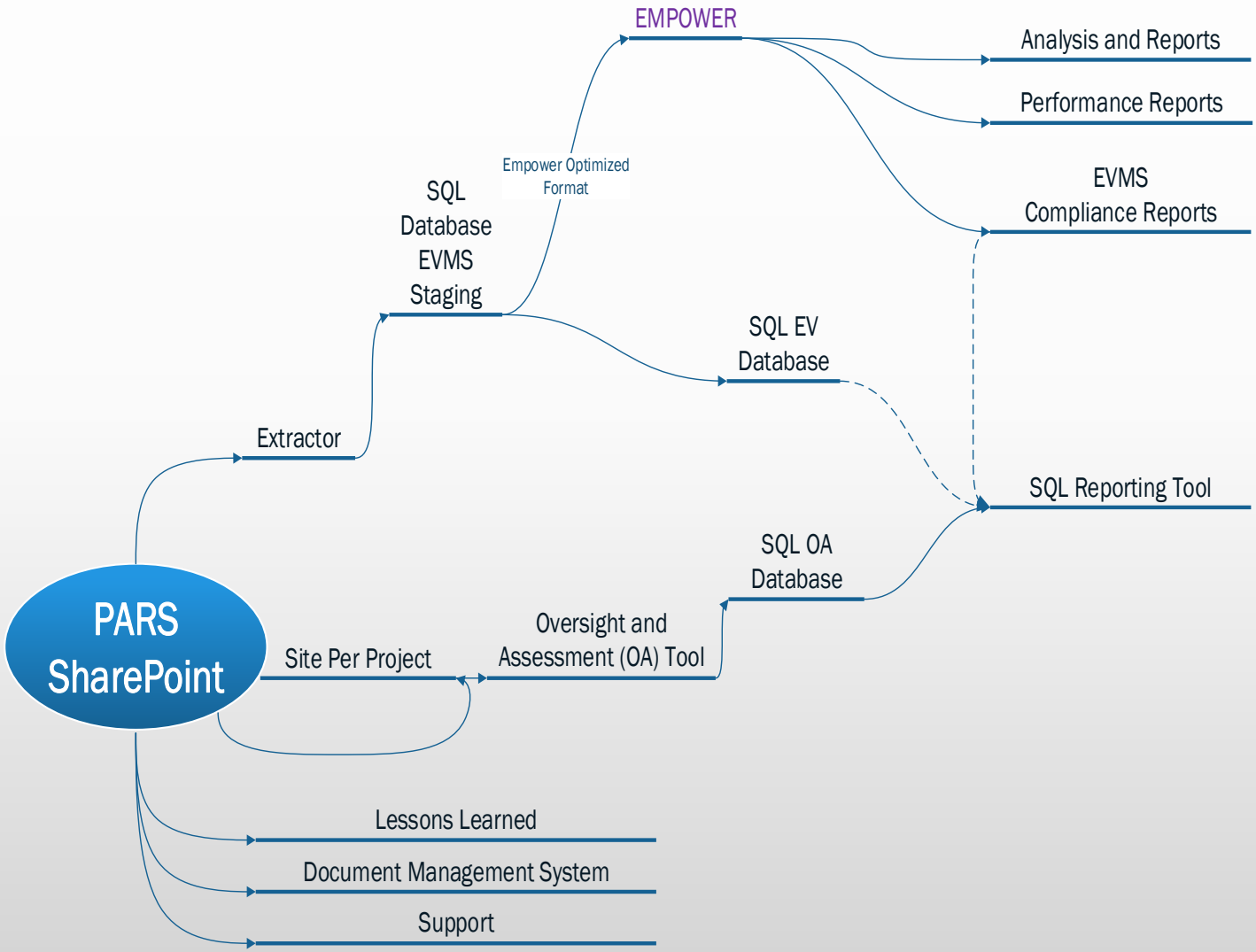
- Extractor Update
  - Technology Update : From Access 2003 to currently supported software
  - Intuitive Navigation : Drop downs to simplify process
  - Agile Development
  - User can configure to extract and report …
    - Cost data to control account level consistent with current extractor, or
    - Detailed cost data to support project control analytics
- Provides additional analytics for project performance and EVMS compliance

Project Controls –Top Level Dashboard (Early Conceptual)

- Top level dashboard aligned with NDIA EVMS EIA-748-C Intent Guide
- 32 guidelines organized into process elements aligned with implementation and execution phases of a project


EVMS DASHBOARD
Implementation Phase
Execution
Contract Award
Authorized to Proceed
Process Element
"Define and Organize Work"
Define and Organize Work
GL 1
GL 2
GL 3
GL 5
EXAMPLE
Plan and Schedule Work
GL 3
GL 6
GL 7
Guideline 3
"Integrate Processes"
Budget and Authorize the Work
GL 3
GL 8
GL 9
GL 10
GL 11
GL 12
GL 13
GL 14
GL 15
Establish the Performance Management Baseline
GL 3
GL 8
Phase

PARS Improvements Due Summer 2019…



Adding EMPOWER to provide improved analytics and compliance tools

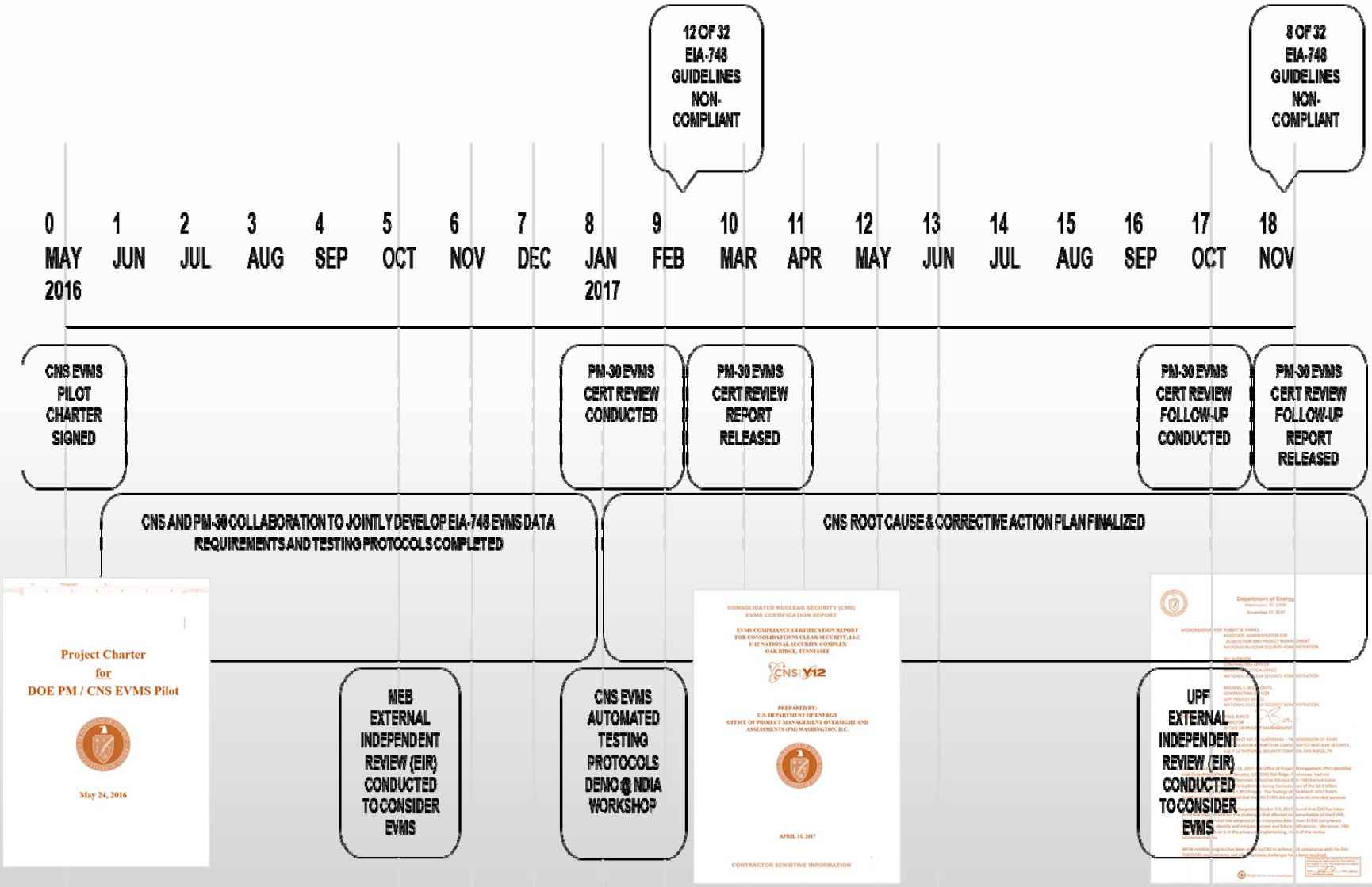
SQL DB remains System of Record

OA and EV data reports will be written in SQL Reporting to provide reports/graphics which require Both OA and EV analysis.

CNS Certification Pilot

- Completed the Certification Process for CNS
- Focused approach using a data driven, automated analysis approach
- Entered in to a Self-Governance model

CNS EVMS Certification Timeline



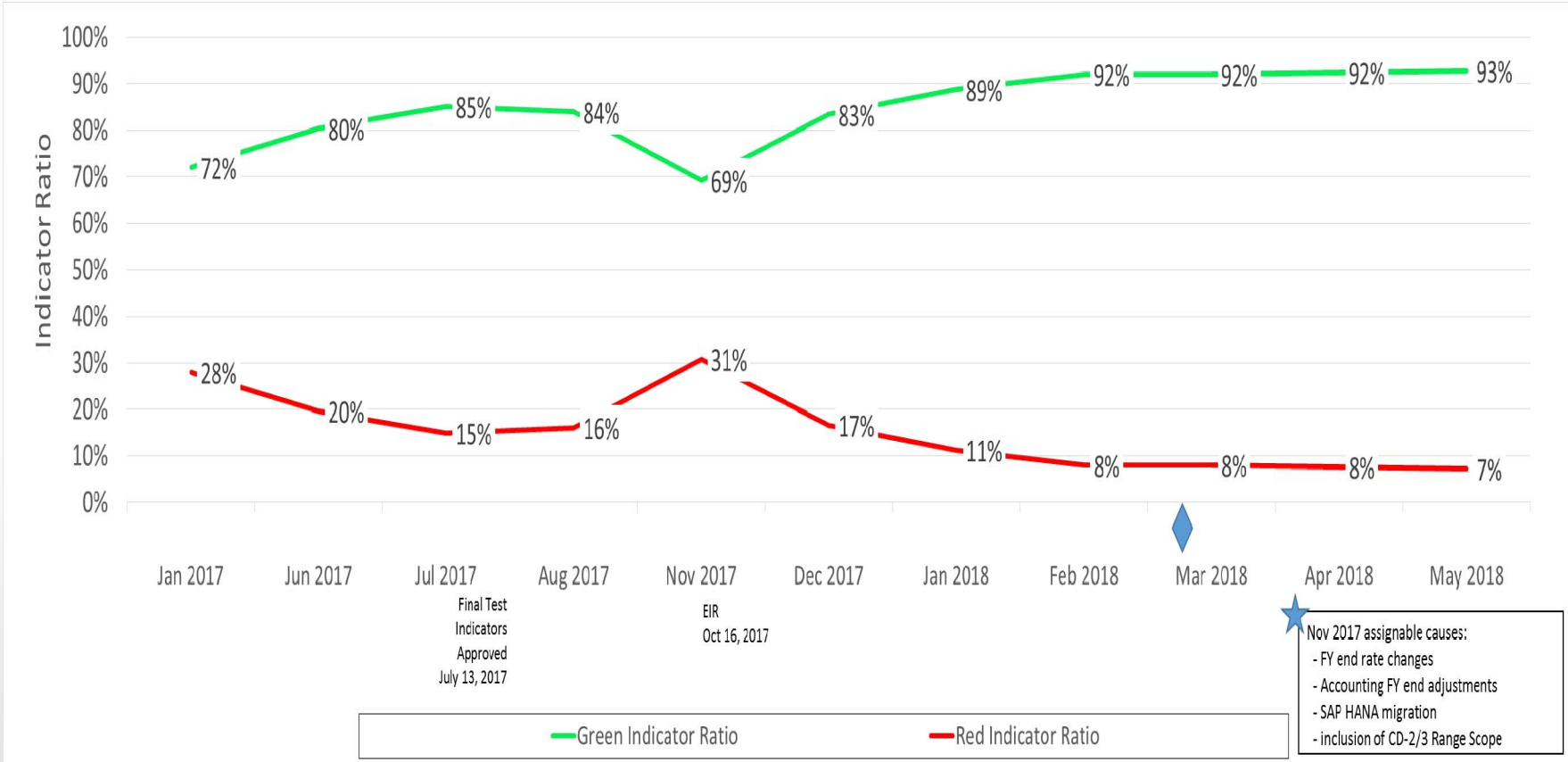
Self-Governance Key Characteristics and Features

- **EVMS Self-Governance**
  - Between Contractor and DOE
- **Contractor Commitment:**
  - ***Leadership engagement*** which via routine and transparent oversight, progress assessment, and open dialogue, ***demands continuous improvement, and defines and enforces project management excellence***
  - A ***chartered authority structure*** (e.g., Governance Board) with ***cross-organizational engagement*** (e.g., financial office, procurement, quality assurance, etc.) to ***establish effective processes which are repeatable and enduring, implement corrective and improvement actions***, and report to and interact with institutional leadership
- Benefits both parties by reducing oversight via access to immediate test results
  - Time to identify and correct the issue before it is a problem

Self-Governance Key Characteristics and Features: Contractor Commitment

- **A methodology to:**
  - Routinely ***monitor, assess and report system health and corrective actions*** via dashboards and metrics
  - Clearly defined and ***independently positioned Program Surveillance Officer*** that has a clear line to senior management
- **A learning organization capable of:**
  - Maintaining and ***improving workforce skill*** via proven techniques such as peer-to-peer mentoring
  - Prioritizing and executing ***process improvements***
  - ***Report improvement progress*** to Governance Board
- Above all and incorporated throughout should be ***transparency and an abject openness to critical feedback***.

Effective Self-Governance Results



Data shows performance improvements over time as a result of a formal Self-Governance program.

EVM ‘Fire Suppression’ System

Why Send A Fire Engine To Do A Smoke Alarm's Job?… It Costs A Whole Lot Less To Have A Smoke Alarm At Every House Than Having A Fire Engine... Smoke Alarms *Prevent* Fires, Fire Engines *Respond* To Fires... Use of EVMS Tests Saves Projects Through Early Detection.

Key Takeaways

- Best Practices
  - Partner with Industry to Improve the Compliance Process
  - Automate to Max. Extent Possible
  - Self Governance: Reduces Oversight; Puts Onus on the Contractor
- Tips & Tricks?
  - Be patient throughout the improvement process
  - Be thorough and committed to the continuous improvement process
    - Plan, Do, Check, Act
      - Initial Pilot, Second Pilot
      - Future Compliance Reviews