Department of Energy
Topical Update

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Topics to Discuss

- Earned Value Management System (EVMS) Research Study with ASU
- DOE Project Assessment Reporting System (PARS)
- EVMS/PARS Snippets
- Standard Operating Procedures and Guides

EVMS Research

- **Earned Value Management System (EVMS) Research Study: Better Governance Through Improving the Reliability of EVMS Implementation**

- **Aims and Objectives**
  - Elevate the worth and utility of the EVMS through unbiased scientific research
  - Develop a tailorable EVMS Maturity Model inclusive of EIA-748 compliance requirements that can accommodate the unique missions, program and project types of the DOE, DoD, NRO, NASA, and other CFAs, as well as commercial ventures requiring disciplined scope, schedule, and cost management
  - Develop a weighted EVMS Maturity Score that provides insights into implementation risks and opportunities
    - **EVMS Maturity Score can reflect the importance of a management process or attribute, individually or collectively** during the planning and execution of a program or project

EVMS Research

- **Hypothesis**
  - An **effective EVMS can position a project for success** by meeting its technical and quality objectives on budget and on schedule

- **Problem Statement**
  - A major **obstacle to obtaining full benefit from the EVMS** is the lack of a common definition for its application across diverse work scopes and consideration of environmental factors in its implementation

  - A major **obstacle for genuinely implementing the EVMS** is the stigma that it is more of a regulatory burden where costs outweigh benefits rather than a necessity for managing dynamic work scopes

EVMS Research – Dimensions of the EVMS

- EVMS Research Study will result in a **method to assess the maturity of management processes and attributes** which comprise the EVMS and the **environment factors** in which the EVMS operates
  - Define the attributes of an **effective EVMS at various maturity stages**
  - Define the **key enablers and barriers to the effectiveness of the EVMS**

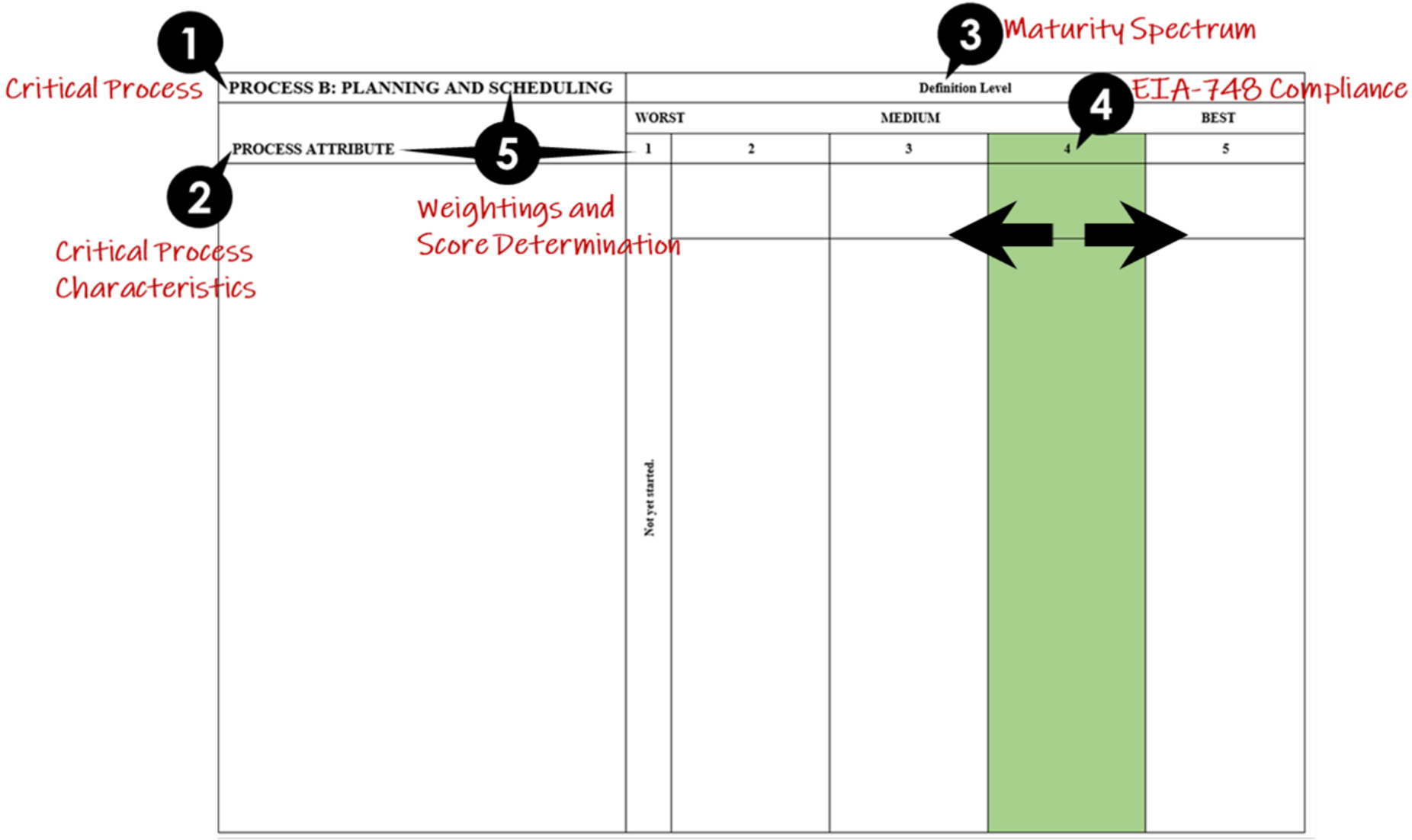
- **EVMS Research Study will leverage** the Construction Industry Institute's (CII) Front End Engineering Design (FEED) Maturity and Accuracy Total Rating (MATRS) methodology as a guide for its work
  - CII FEED MATRS consists of 46 engineering design elements and 27 accuracy factors that **generates two separate scores: a maturity score and an accuracy score**

- The FEED MATRS methodology lays the foundation for predictable and efficient project delivery through better Front End Planning (FEP), and has been a **CII Best Practice for over 24 years resulting in project cost savings and project schedule reductions**

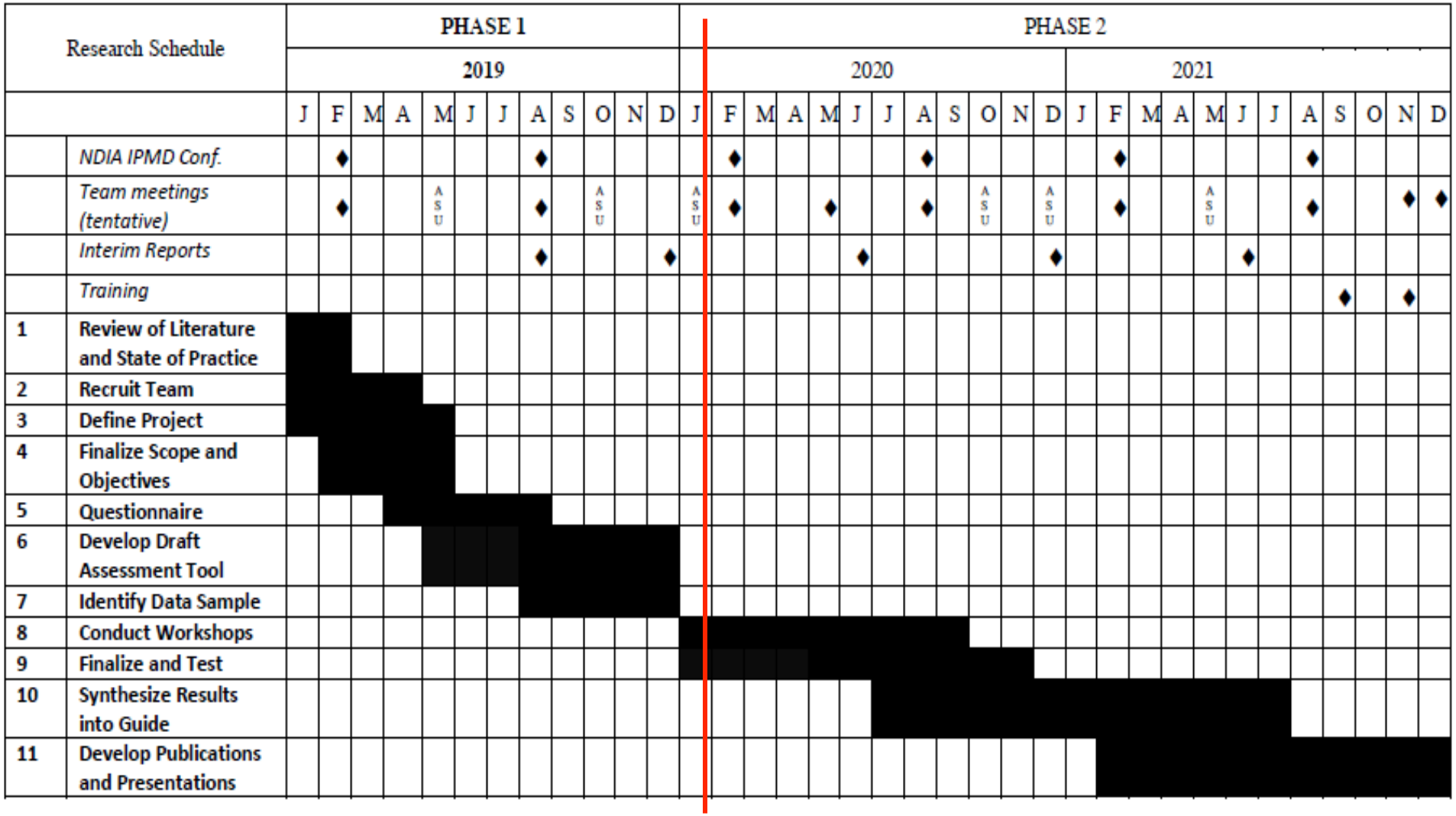
EVMS Research – Strengthening the EVMS

- By **looking at compliance in a different and holistic manner,** are there significant opportunities to **improve the reliability of EVMS implementation?**
  - Can EVMS implementation (and EIA-748 compliance expectation) be better served by **using a "sliding scale" to consider project phase, cost, and risk levels**?
  - To what extent do **environment factors, both internal and external to a project**, affect the reliability of EVMS implementation?

EVMS Research – EVMS Maturity Spectrum



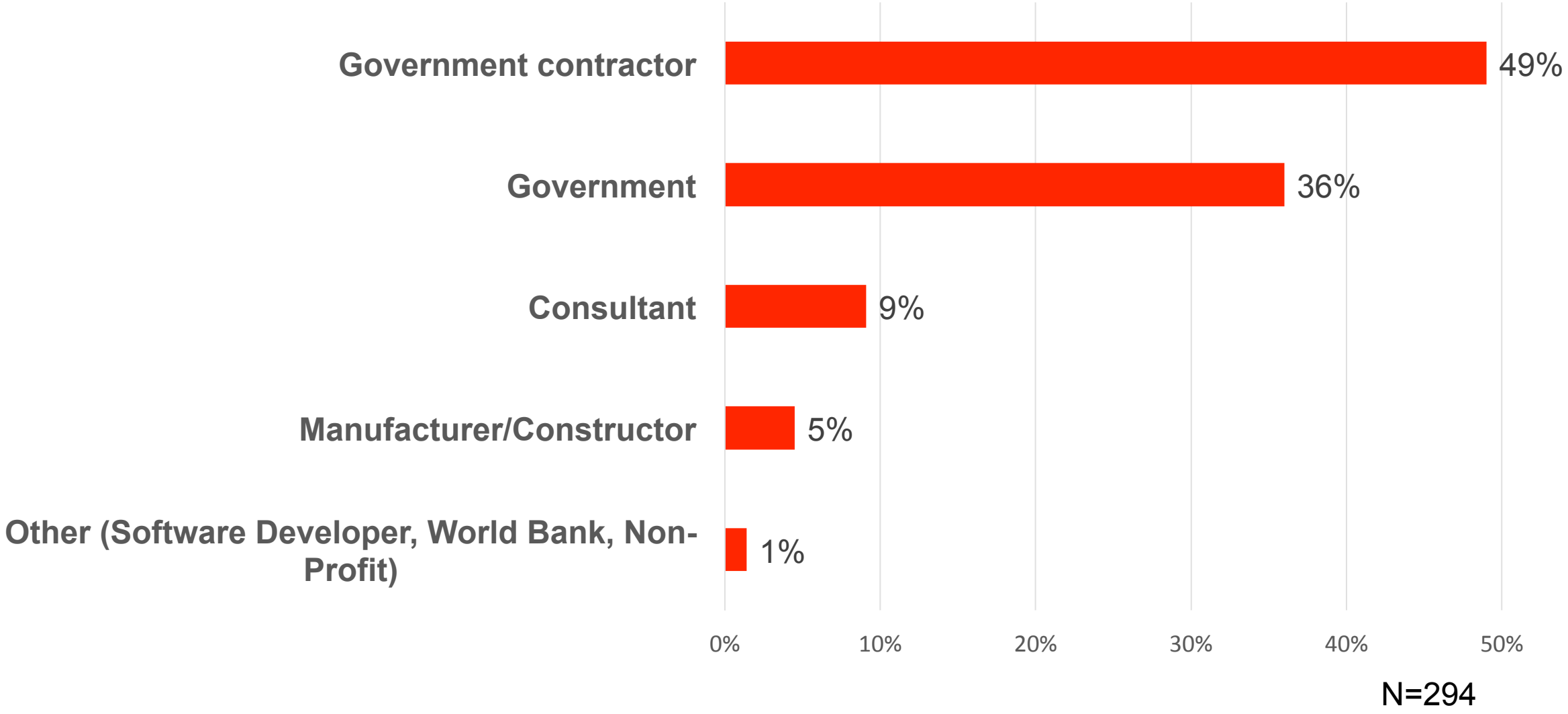
EVMS Research – Timeline



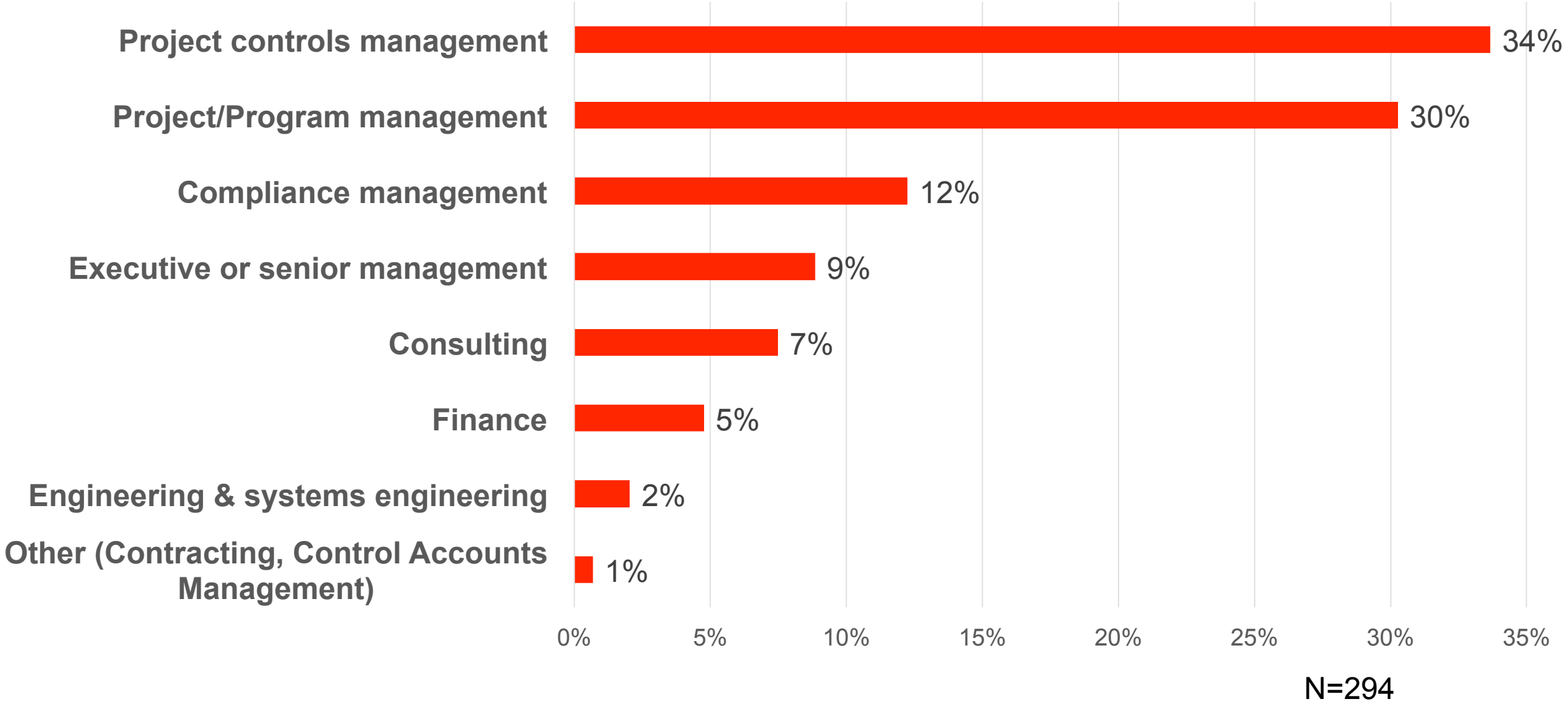
Survey – Final Results

- **Purpose**
  - Check our definitions
  - Feedback on our approach
  - Assist in development of our tool
- **August 29, 2019 to October 31, 2019**
  - **Well over 500 solicitations**
  - **Project and program management/leadership**
- **294 usable responses**

Employer

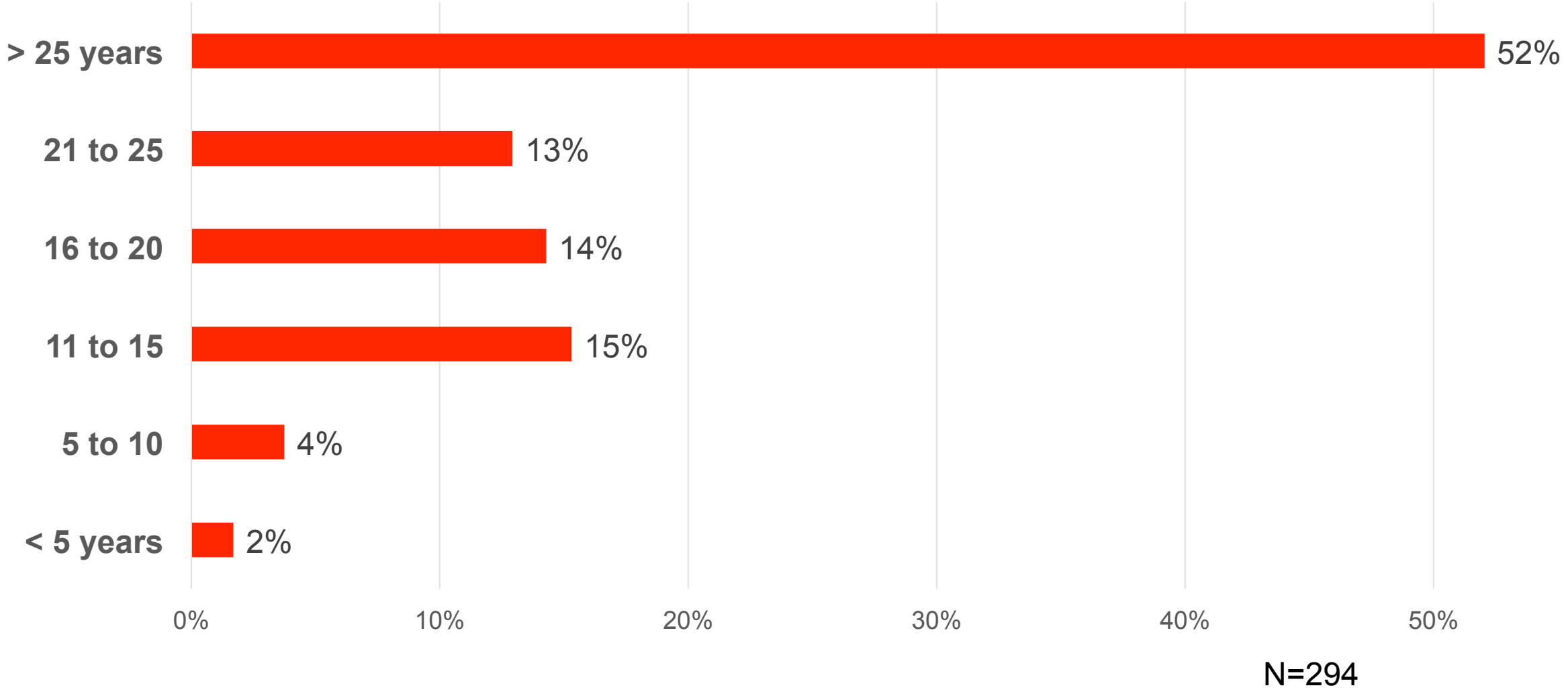

Government contractor
49%
Government
36%
Consultant
9%
Manufacturer/Constructor
5%
Other (Software Developer, World Bank, Non-Profit)
1%
0%
10%
20%
30%
40%
50%
N=294

Employment role



N=294

Years of work experience

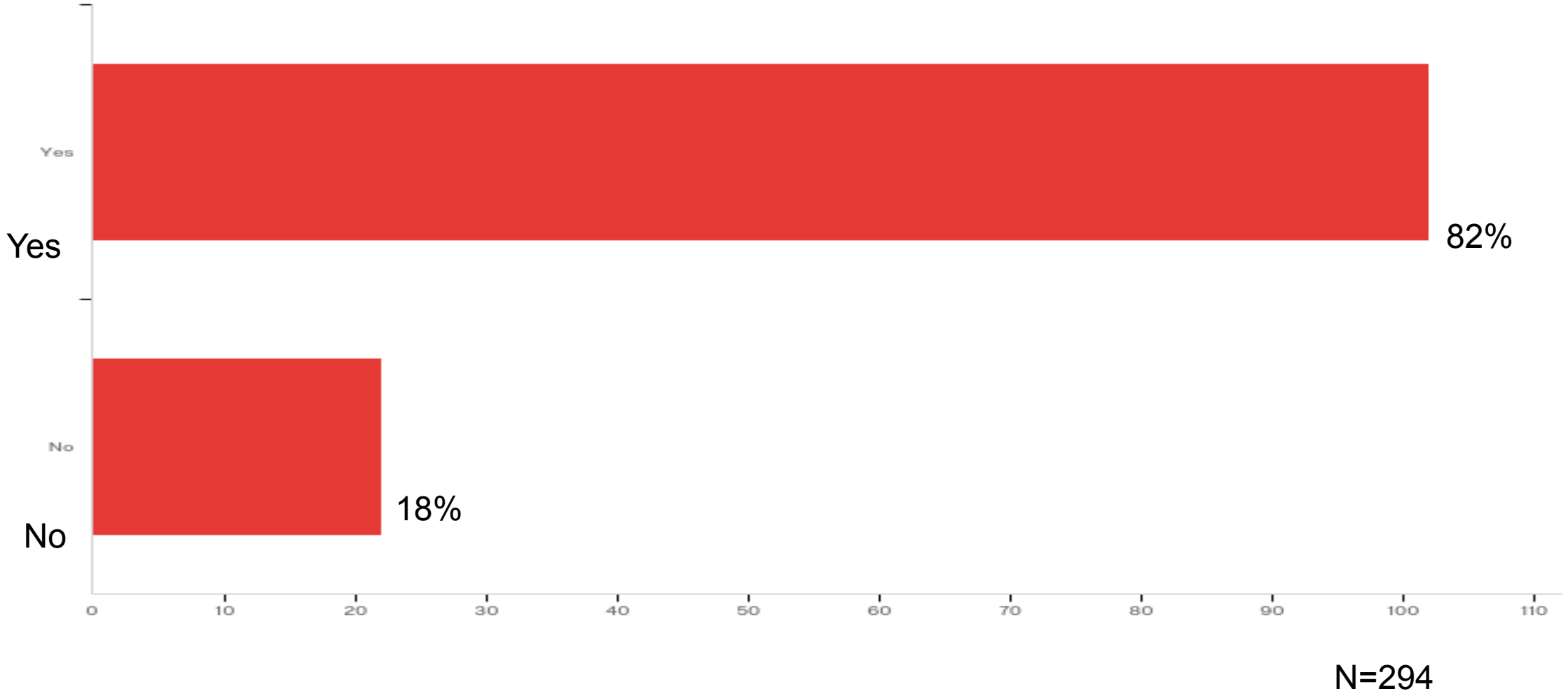


N=294

Working Definition of EVM

The use of performance management information produced from the EVM system, to plan, direct, and control the execution and accomplishment of contract/project cost, schedule, and technical performance objectives.

Do you agree with this EVM definition?



If No, why?

- Should address measuring of status and progress against a plan
- Forecasting aspect is missing in the definition
- Risk component should be included
- EVM is a tool, and it is not the only tool
- Rethink use of words “control” and “contract” in the definition

N=52

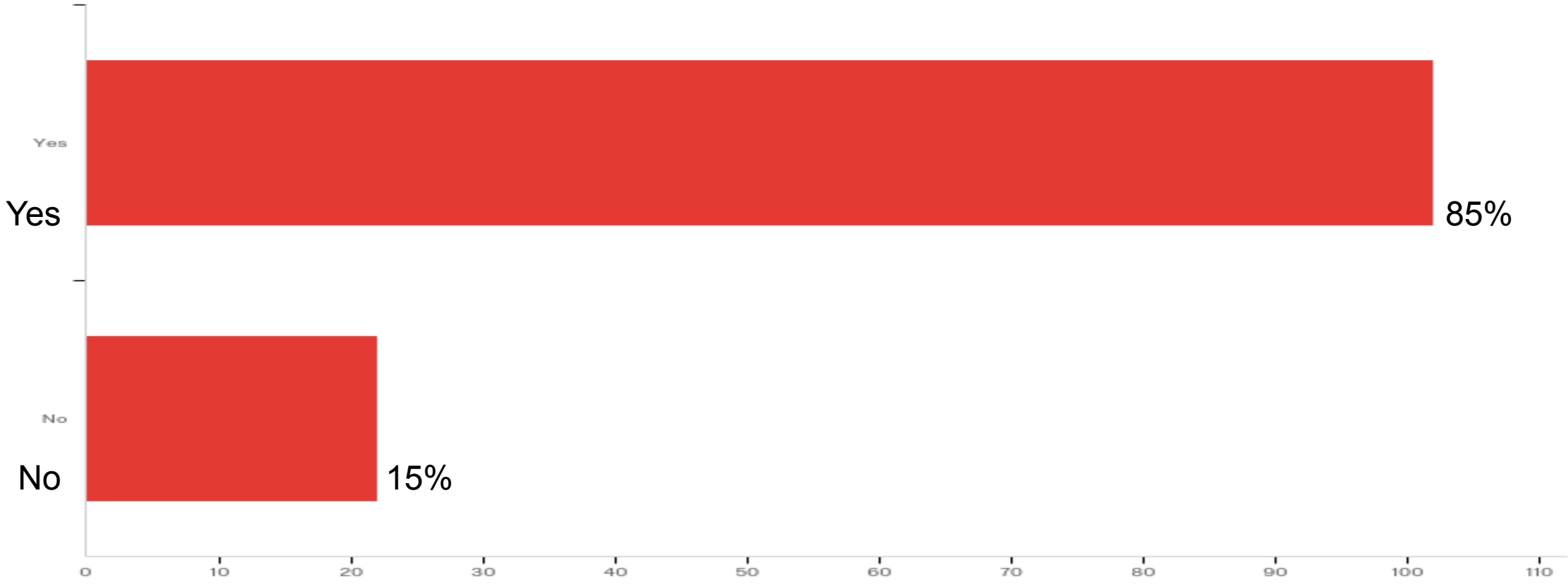
The Research Team will revisit EVM’s definition and may update based on the Survey’s feedback

Working Definition of EVMS

An organization's management system for project/ program management that integrates a defined set of associated work scopes, schedules and budgets for effective planning, performance, and management control.

Do you agree with this EVMS definition?

Most of the Respondents agree with The Research Team's Definition of EVMS:



N=285

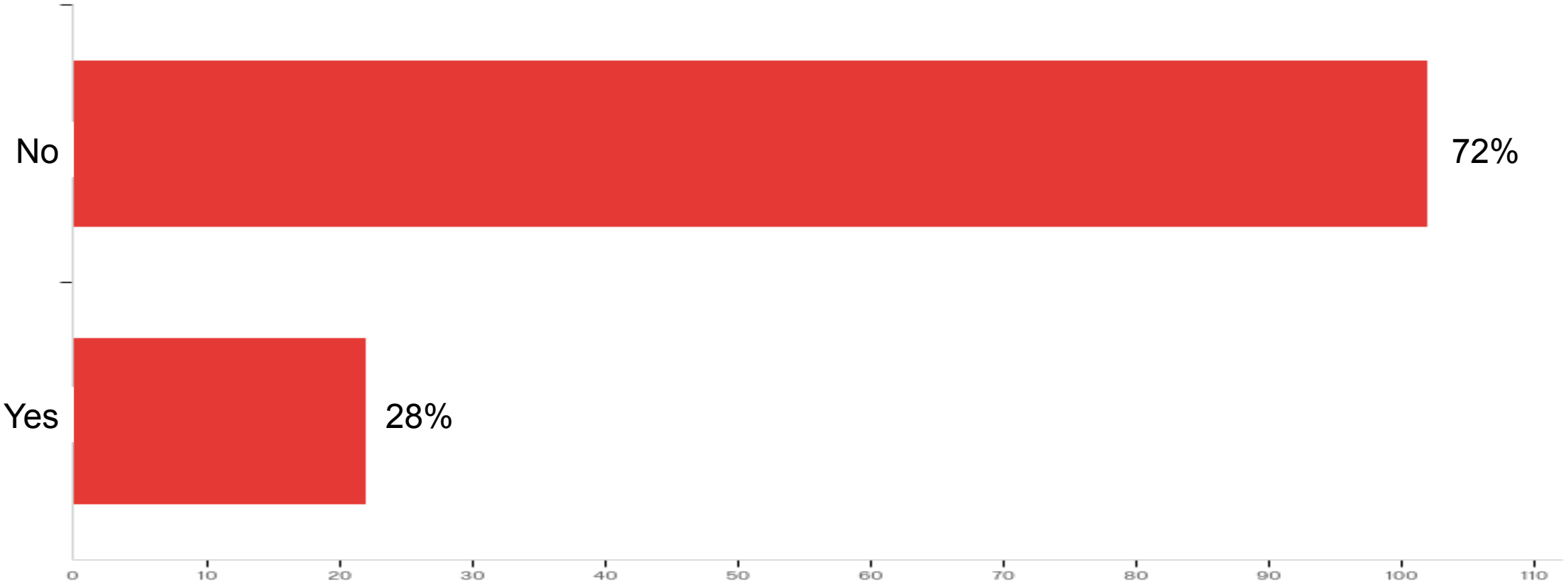
If **No, why?**

- Notion of risk management / risk is missing in definition
- The word “objective” or to “objectively” measure performance is missing
- Definition should include reference to EIA-748 32 guidelines or other standards
- Forecasting aspect is missing
- EVMS is a tool, but it is not the only tool
- Phrase “associated work scopes” is not clear

N=43

The Research Team will revisit EVMS’s definition and may update based on the Survey’s feedback

Does your organization evaluate maturity of Earned Value Management System (EVMS) in addition to EVMS compliance?



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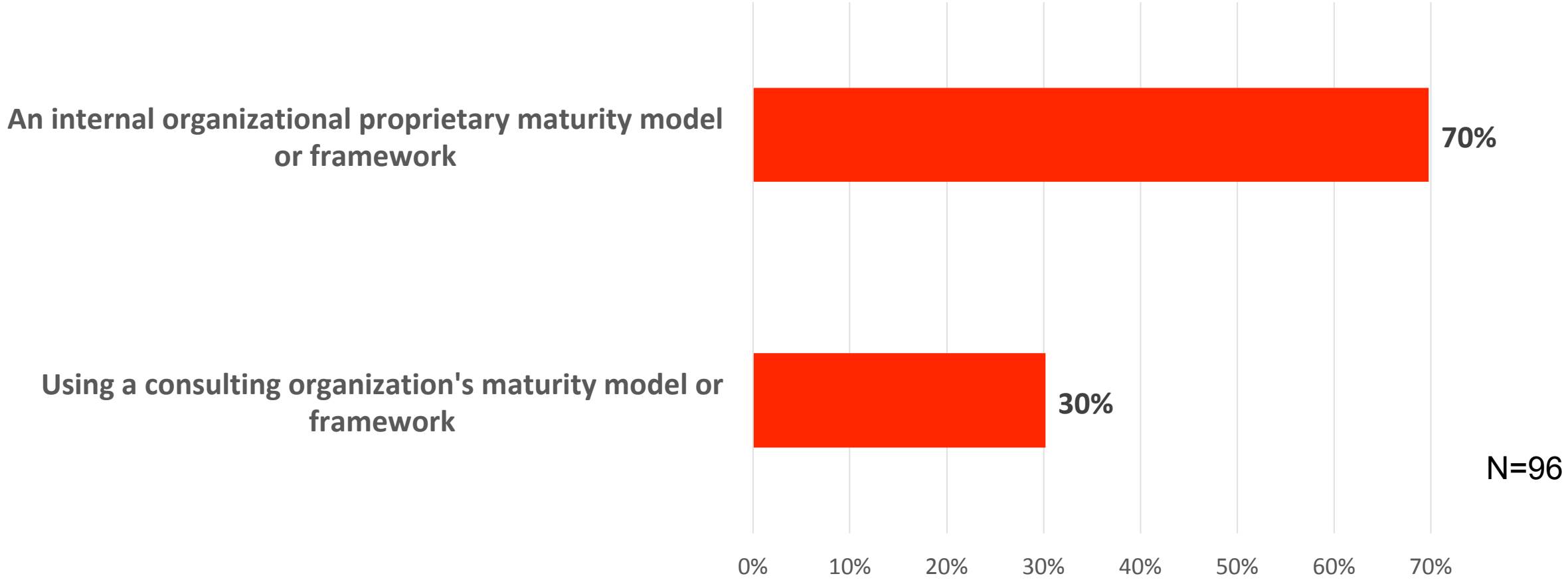
EVMS Maturity is defined as the degree to which an implemented system, associated processes, and deliverables serve as the basis for an effective and compliant EVMS

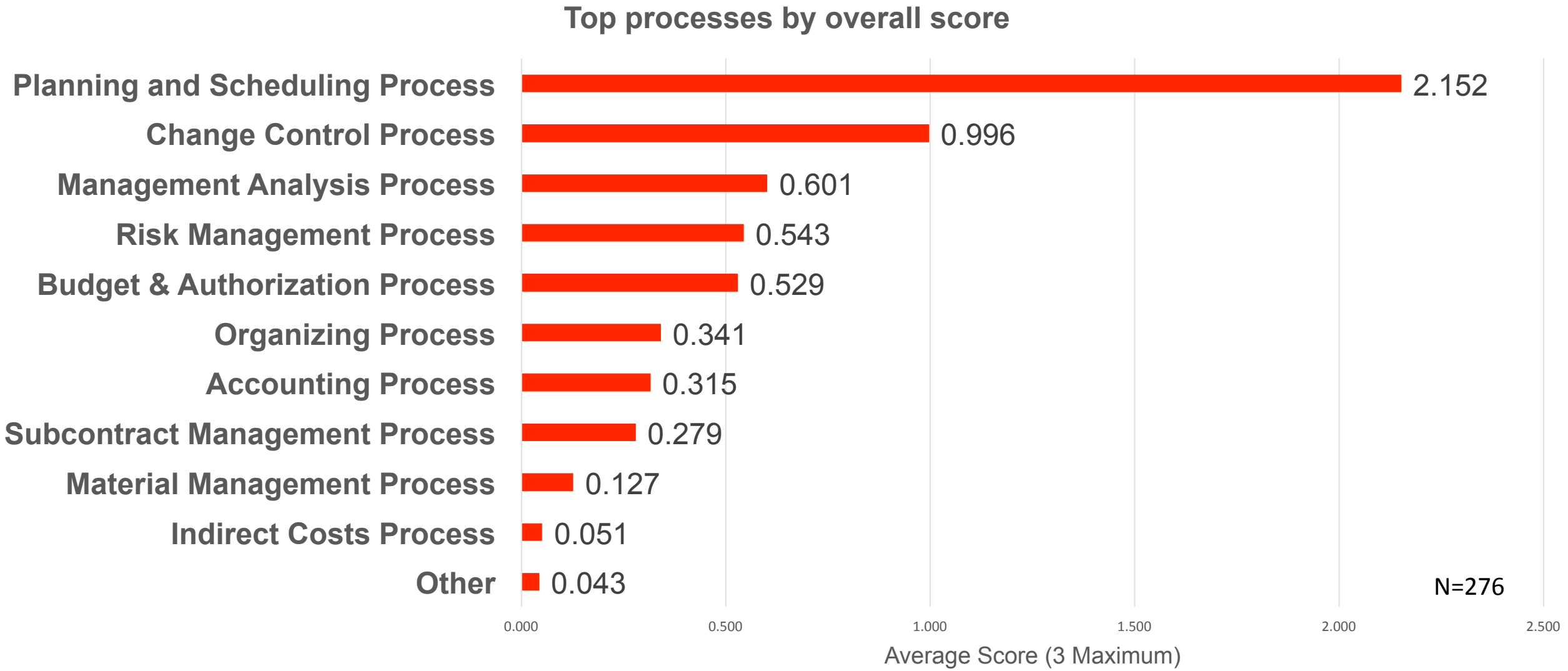
Since you answered yes, **how do you evaluate maturity?**



EVMS Maturity is defined as the degree to which an implemented system, associated processes, and deliverables serve as the basis for an effective and compliant EVMS.

What are the most challenging aspects of managing a project/program using the Earned Value Management System (EVMS) (top three ranked)

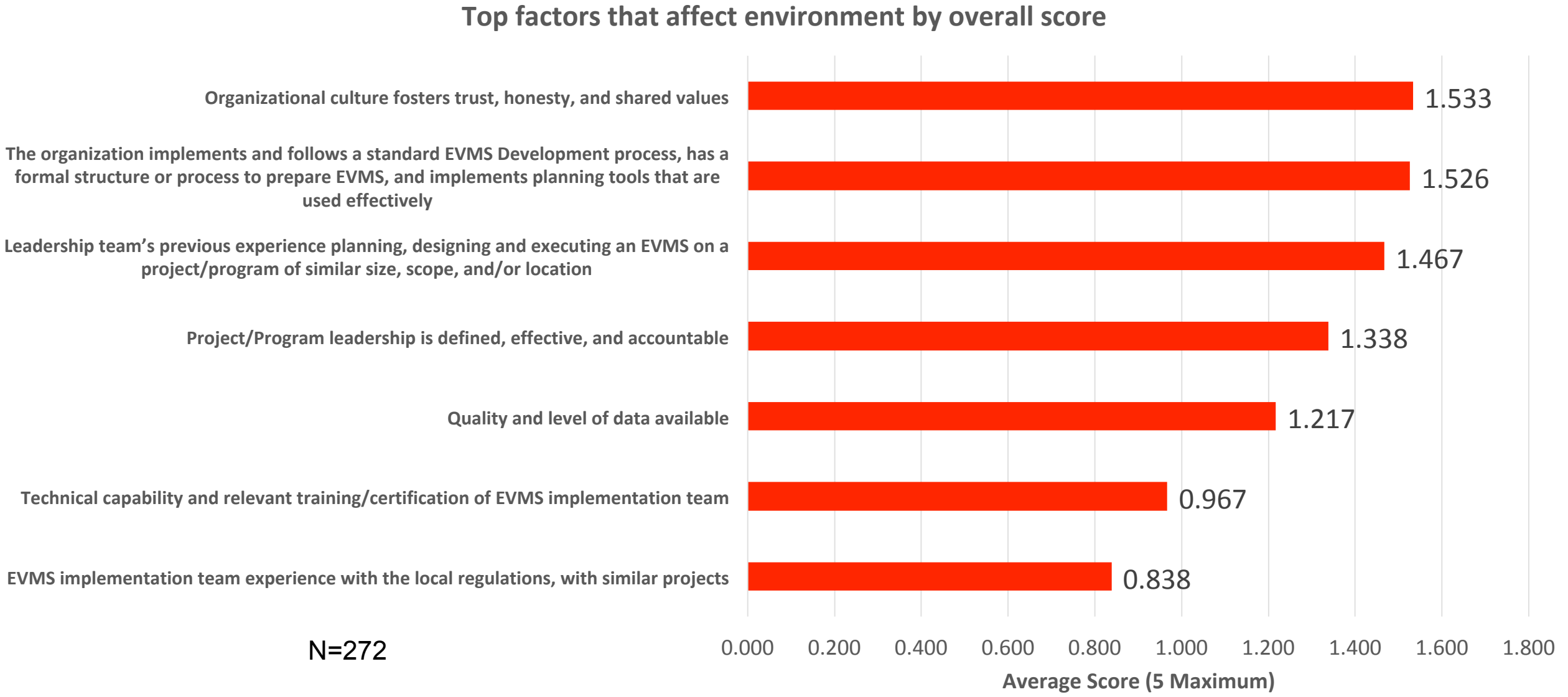
Core processes typically make up an Earned Value Management (EVM) system. The top three ranked in terms of its impact on EVMS effectiveness.



EVMS Environment Factors, the second dimension

Factors that influence the degree of confidence in the outputs of the EVM system, associated processes, and deliverables that serve as a basis for effective program/project management and decision making.

Factors impacting the Environment of Earned Value Management (EVM) systems



Working Definitions (Maturity)

EVMS Maturity:

The degree to which an implemented system, associated processes, and deliverables serve as the basis for an effective and compliant EVMS.

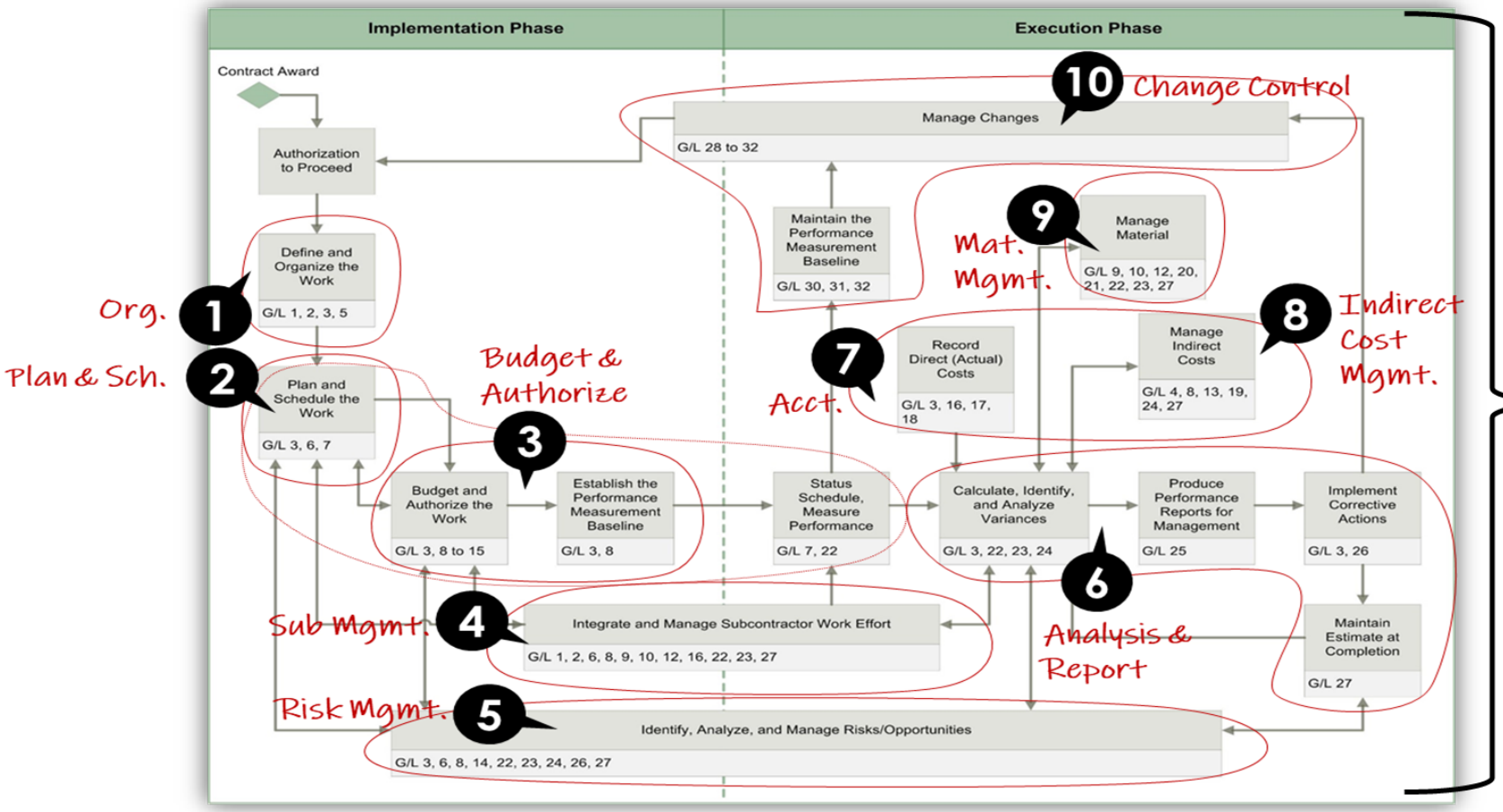
EVMS Process:

A series of interrelated tasks that, together, transform inputs into a system to achieve EVM.

Attribute:

Core characteristic or quality that is essential to fielding an effective EVMS.

EVMS Core Processes



Source: NDIA EVMS Scalability Guide

System of Systems

1) Organizing
2) Planning and Scheduling
3) Budgeting and Work Authorization
4) Subcontract Management
5) Risk Management
6) Analysis and Management Reporting
7) Accounting Considerations
8) Indirect Cost Management
9) Material Management
10) Change Control

Working Definitions (Environment)

EVMS Environment:

The conditions that impact the degree of confidence in the outputs of the EVM system, associated processes, and deliverables that serve as a basis for effective program/project management and decision making.

EVMS Environment Category:

A class or division of factors regarded as having particular, shared characteristics, arranged in a topological fashion.

EVMS Environment Factor:

One of the circumstances, facts, or elements that contributes to the result or outcome of an EVMS.

Environment Categories and Example Factors

- **People/Culture**
  - Corporate Commitment
  - Previous experience
  - Customer influence on the Contractor's EVMS
  - Etc.
- **Practices**
  - Clear priorities among EVMS requirements and project/program objectives
  - Significant input of Subject Matter Expert knowledge
  - Scalability and tailoring of processes
  - Etc.
- **Resources**
  - Commitment of key personnel
  - Sufficient budget to implement EVMS
  - Availability and use of technology/software and tools for the integrated EVM system
  - Etc.

EVMS Maturity Attribute – Vertical Hierarchy and Reporting Requirements

PROCESS A: ORGANIZING	Definition Level				
	WORST		MEDIUM		BEST
A.3. Vertical Hierarchy and Reporting Requirements	**1**	**2**	**3**	**4**	**5**
The Work Breakdown Structure (WBS) scope is arranged in clear and logical grouping, and is inclusive of all authorized contract work effort regardless of entity performing the work. There is clear vertical integration traceability between the WBS hierarchy and the authorized scope established. All WBS elements are specified for external reporting. Items to consider include: Statement of Work (SOW) Work Breakdown Structure (WBS) Traceability matrix from project/program requirements (e.g., SOW, build specifications) to WBS WBS index/dictionary, or a method to reconcile the statement of work to the WBS structure must be demonstrated Integrated Program Management Report (IPMR) Base contract and modifications WBS allows for clear and logical groupings, including identification of subcontractors Other The Vertical Hierarchy and Reporting Requirements process should be coordinated with the Analysis and Management Reporting process and the Subcontract Management process. *References:* NDIA EIA748-D GL 1	**Not started.**	**There are only a few WBS elements specified for external reporting. There is little vertical integration and little traceability between the WBS and authorized scope.** The process to maintain a logically grouped WBS has started, with hierarchical integration of all authorized scope that accurately reflects the products, services, and deliverables required to complete the program. Many of the WBS elements are missing from the reports. There is little logical grouping of the program scope and how it is arranged in the WBS. The WBS elements have not been specified for external reporting. Outputs, products, and results sometimes comply with contract and internal requirements.	**Most of the WBS elements are specified for external reporting. There is vertical integration and traceability back to the WBS and authorized work scope with only minor gaps or errors.** Most of the process to develop and maintain a logically grouped WBS has been defined, with limited open items. The process includes hierarchical integration of all authorized scope that accurately reflects the products, services, and deliverables required to complete the program. Most of the WBS elements that are specified for external reporting are traceable. There is consistent logical grouping of the program scope and how it is arranged in the WBS. The WBS elements have not been specified for external reporting. Outputs, products, and results mostly comply with contract and internal requirements.	**There are clear and traceable WBS elements specified for external reporting. Vertical integration is accurate and traceable throughout all external reports.** The process to develop and maintain a logically grouped WBS has been defined. The process includes hierarchical integration of all authorized scope that accurately reflects the products, services, and deliverables required to complete the program. All authorized WBS elements and levels are clearly defined and called out in external reporting. There is consistent logic and groupings of work scope that is arranged with vertical integration throughout the WBS hierarchy. Any errors or issues are minor, not repetitive, and can be quickly and easily corrected. Outputs, products, and results generally comply with contract and internal requirements.	**The WBS clearly shows that vertical integration is established and all WBS elements are specified and updated as authorized changes occur for external reporting on a monthly basis.** The process to develop and maintain a logically grouped WBS is defined, documented, and approved by key stakeholders (e.g., sponsor, operations, customer) with no open items. All authorized WBS elements and groupings are consistent and have clear vertical integration that is 100% traceable. They reflect any contractual changes and there is evidence that this process is repeatable from month to month, including changes and additions to the WBS. Outputs, products, and results are integrated into project/program planning, control, and decision-making. The Vertical Hierarchy and Reporting Requirements process has been coordinated with the Analysis and Management Reporting process and the Subcontract Management process.

EVMS Maturity Attribute – Authorized, Time-Phased Work Scope

PROCESS B: PLANNING AND SCHEDULING	Definition Level				
	WORST		MEDIUM		BEST
B.1. Authorized, Time-Phased Work Scope	**1**	**2**	**3**	**4**	**5**
An authorized time-phased work scope is a key component of the Integrated Master Schedule (IMS). The IMS is a networked schedule containing all the detailed Work Packages (WPs) and planning packages (or lower level activities or activities) necessary to support the events, accomplishments and criteria of the Integrated Master Plan (IMP) or similar high-level planning document. The IMS reflects all authorized, time-phased work scope to be accomplished, including details for any significant subcontracted effort and High Dollar Value (HDV) materials/Critical Items (CI) that could affect the critical path of the IMS. All discrete work scope in the IMS is traceable to the Work Breakdown Structure (WBS), Project Execution Plan (PEP), and the Statement of Work (SOW). A realistic network schedule and time-phased budget/resources are key factors in ensuring the success of the program. Items to consider include: Labor and material resources are fully planned, and time-phased for all tasks Labor resource peaks are minimized Activities consider availability and allocation of resources Subcontractor baselines are integrated into the prime baseline Materials, especially those that may impact critical path, are considered when planning work scope Other The Authorized Time-Phased Work Scope process should be coordinated with the Material Management process and Subcontract Management process. *References:* DOE CAG NDIA EIA748 Intent Guide GL6 DoD EVMIG	**Not yet started.**	**Some identification of time-phased work scope within the IMS has occurred.** Some activities in the IMS are traceable to the PEP, SOW, IMP, WBS or similar document. However, the network schedule and time-phased budget/resources developed to date are insufficient to successfully manage the project/program.	**The time-phased work scope in the IMS is mostly defined and most of the activities are traceable to the WBS, PEP, SOW and IMP.** Identification of internal and subcontracted work scope has occurred. Most of the subcontractors with HDV/CI are separately identified and assigned to the appropriate WBS elements.	**With few exceptions, the IMS is fully defined and all of the activities are traceable to the WBS, PEP, SOW and IMP.** Segregation of internal and subcontracted work scope has occurred. Subcontractors with HDV/CI are separately identified and assigned to the appropriate WBS elements. Subcontractor and procurement work scope are integrated into the IMS at a level to provide for accurate reporting and progress measurement.	**All items within the IMS are fully defined and all of the activities are traceable to the WBS, PEP, SOW and IMP.** A defined process and structure is in place to provide mapping and traceability of all activities to the WBS, PEP, SOW, IMP or similar document. Subcontractor and procurement work scopes are fully integrated into a single IMS. The Authorized Time-Phased Work Scope process has been coordinated with the Material Management process and Subcontract Management process.

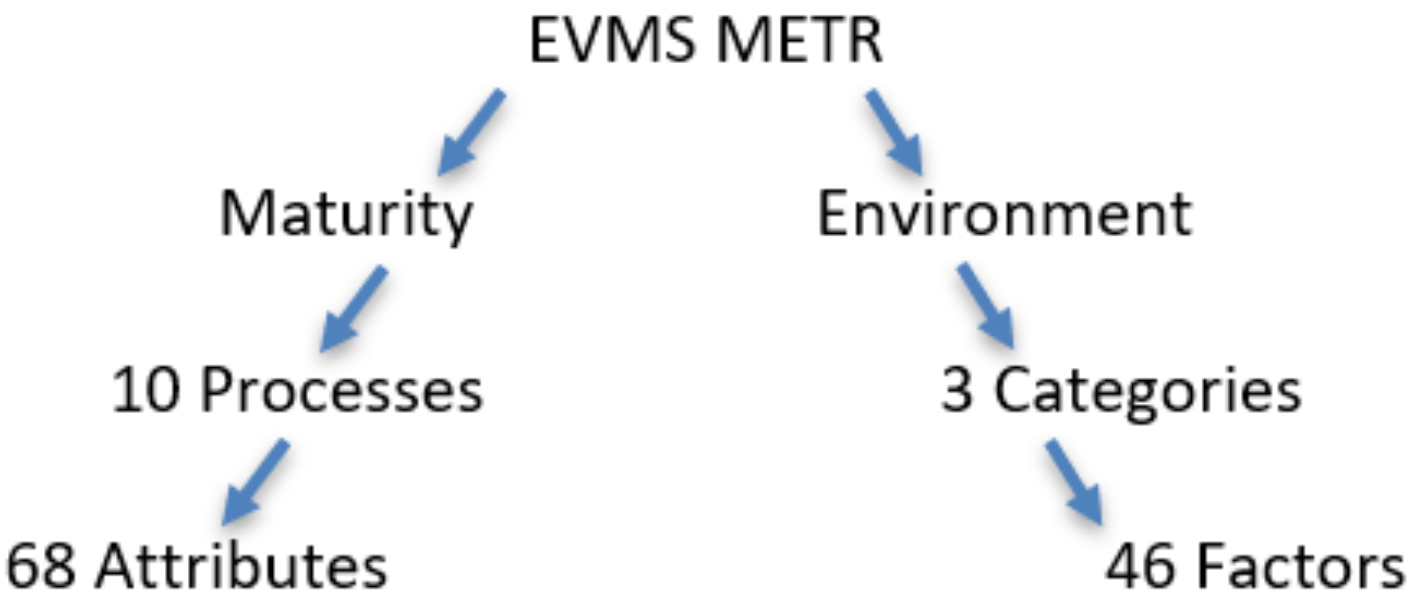
EVMS Environment Factor - Leadership

Factor	From EVMS Survey	Description
1c	Project/Program **leadership** is defined, effective, and accountable	Project/Program leadership roles will vary across organizations and typically include a venture manager, project sponsor, project director, execution/manufacture manager, operations manager, and others. Additionally, organizational structure typically follows the hierarchy of executive steering committee, project leadership team and project execution team. The project sponsor and executive leadership can dramatically affect the accuracy of EVMS implementation. These individuals ultimately will be held accountable for project success. Moreover, components of good leadership typically include: • Good general knowledge of EVMS, contracting strategy, project phases, and project delivery systems • Good understanding of related business critical success factors • Capacity to determine and align the needs of the key stakeholders • Adequate understanding of technical requirements • Good understanding of assessing and managing uncertainties and risks

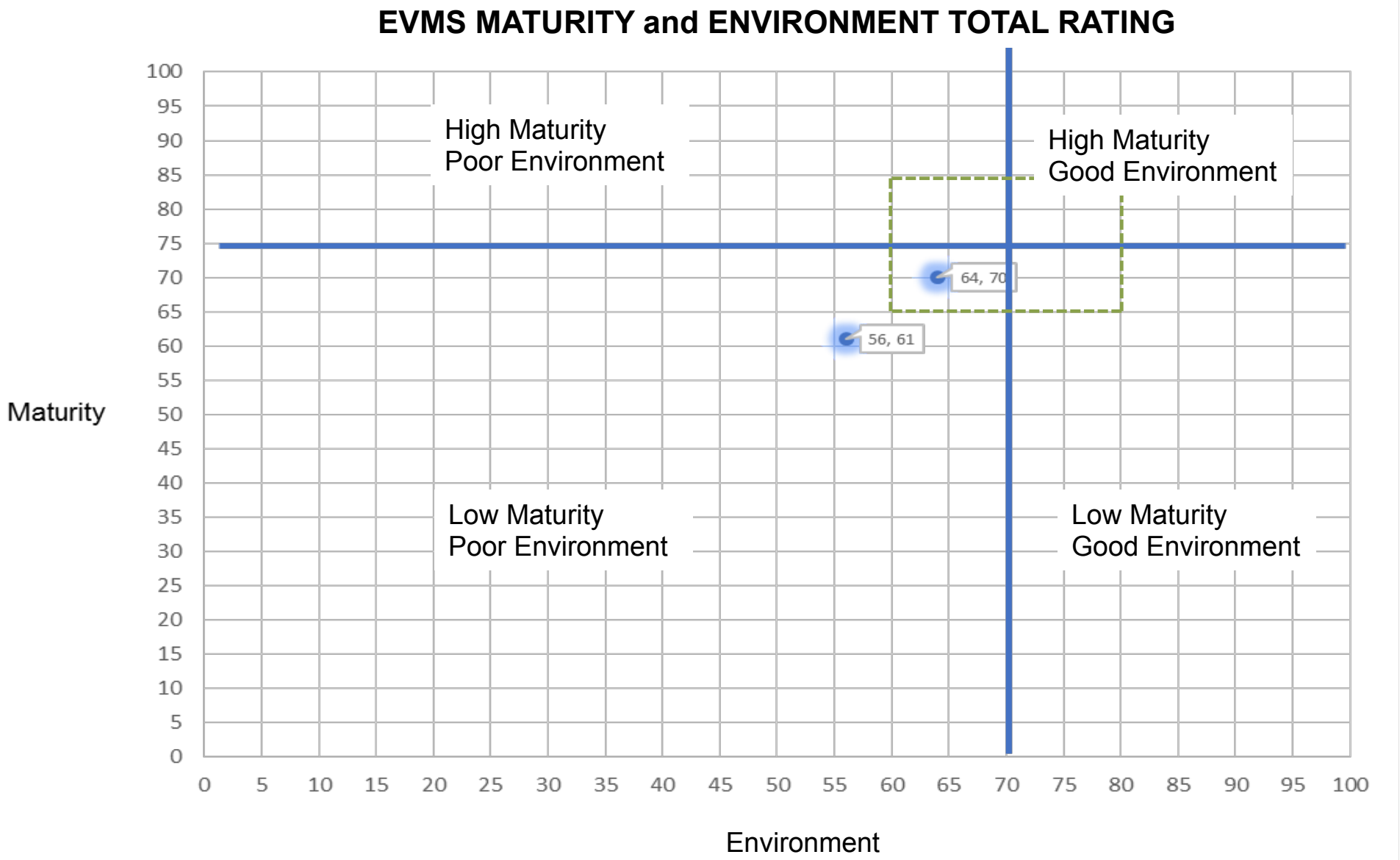
Level of Assessment

N/A	High Performing	Meets Most	Meets Some	Needs Improvement	Not Acceptable
Not required for project.	Rating a factor High Performing indicates the factor's criteria are fully met within the context of their respective category, e.g., project leadership, execution, management, or project resources.	Rating a factor Meets Most indicates that the factor's criteria are consistently met and understood with minor deficiencies.	Rating a factor Meets Some indicates that the factor's criteria are partially met and without improvement, project success could be in jeopardy.	Rating a factor Needs Improvement indicates that the factor's criteria are not consistent in meeting project expectations and without improvement, the project is at risk. Substantial action to meet expectations is required.	Rating a factor Not Acceptable indicates that the factor's criteria are consistently below expectations and current performance is unacceptable. Project success cannot be achieved in this current state and actions are required to improve.

EVMS Maturity and Environment Total Rating (METR) – Draft Structure



Envisioned EVMS METR Plot



EVMS Workshop Plan

- **Objective:** Cold-eyes EVMS METR evaluation and weighting of attributes and factors
- **Attendees:** Looking for 20 attendees per session, with minimum 10 years experience in project controls
- **Logistics:**
  - Beginning in summer 2020
  - Five or six workshops expected around the US (Washington DC, Huntsville AL, NDIA Fall Meeting, West Coast, etc.)
  - Meetings start at 9:00 am and end around 3:30 pm with lunch served

If you're interested in hosting or participating, please contact us

PARS

DOE Metrics

- **DOE – EVMS Metric Tests – Current Number 197 – going down to 192**
  - Worked with EFCOG over past few years to go from initial number of tests (over 600) to current level
  - DOE specification sheets update being finalized this week
  - Establish and maintain configuration control –update once a year (now)
  - Many tests are similar to DOD; DOE has more BL IMS metrics
- **Work with vendors to add to their software**
  - Testing now with live data (TRIAD, CNS, MSTS, NWP, and WRPS)
  - Using last year of data to inform the update rolling out this week

Ongoing – EFCOG EVMS Best Practices Work Group

A partnership between DOE and the Energy Facility Contractors Group to identify challenge and options to minimize impacts from:

- Changes in contractor within the life of a project / program
- Setting up a new project / program
- Recommendations of cost and schedule tool set up
- New tools dealing with legacy data
- Data use in governance (self-governance)
- Configuration control
- Integration

Project Analysis and Reporting System (PARS) Data

- **2010 to present – contractors required to report EVMS data with cost at the Control Account level and Schedule by activity.**
- **2016 to present – work with EFCOG and others to set up option that supports contractor self-surveillance with DOE federal oversight – requires cost reporting at the work package level by element of cost and schedule by activity by element of cost.**
- **Data challenges are being worked through with contractors seeking to benefit from self-surveillance**
  - TRIAD
  - NWP
  - MSTS
  - WRPS
  - CNS
  - FLUOR
- **Several data issues found and being addressed which impact the quality of the data provided to the government for specific projects.**

PARS Data – Sample of issues identified

- **Four contactors providing WP by EOC level data for testing**
- **Issues – both contractor and DOE**
  - Structure challenges – WBS and OBS
    - Parent relationship problems where a project has multiple level one elements – most so far = 32
    - Schedule and Cost integration broken – Scheduler updates WBS with a prefix or suffix as project moves forward to better see activities, without same changes in Cost. Could have used a user defined field – but did not.
    - No OBS
    - Summary WPs with “S, P, and A” scattered
  - Contractor system challenges
    - Budget Alignment – procurement budget under material with resources under ODC.
    - Data missing – ETC without budget
    - Dates differ between older reporting periods and current – impact history
    - Basic data quality / system metrics
- **Planning factor of several months for each contractor as they convert to WP by EOC reporting**

PARS Updates

- **Changes to flat files to pass data to Empower (Planned in Feb)**
  - –Work Authorization Documents (WADs)
  - –Cost
  - –Schedule
  - –IPMR Header (update to DOE DID)
- **Build Training for Deskside Delivery / PMCDP**
  - –Design & develop deskside delivery user training – Ongoing
  - –Deploy new PARS User Training – May/June 2020
- **EVMS Project Analysis SOP** – January 2020
- **Data Quality Visits and Reviews**
- **Work with Vendors to add or update DOE Metrics**

DOE EVMS Compliance Metric Spec Sheets

count	method
97	automated
35	automated/manual verification
43	automated/manual
17	manual
192	**sub-total**

DOE EVMS Metric Specification

1. EIA-748 Guideline	2. Metric ID	3. Method	4. Frequency
01	01.01.01 (1)	automated/manual	initially & following implementation of customer changes

5. Attribute

1. Is the product-oriented WBS used for a given project extended to the CA level as a minimum?

6. Metric Intent

This test confirms that the WBS is product and deliverable oriented depicting the breakdown of work scope for work authorization, tracking, and reporting purposes. The testing compares the products and deliverables in the scope documents (e.g., contract, PEP, PMP, conceptual design report,...) to the WBS. All elements of the WBS should be defined in an accompanying WBS dictionary. Reference is made to the DOE WBS handbook for this assessment.

7. Metric Short Description

WBS dictionary unsubstantiated

8. Metric

X =
1. Products and deliverables in the scope documents (e.g., contract, PEP, PMP, conceptual design report,...) are not identified in the WBS dictionary. Reference DOE WBS handbook for guidance.
2. Product-oriented groupings of project scope elements in the WBS dictionary are not organized and subdivided to the total work scope as defined in the scope documents.
3. The WBS dictionary does not define the products and deliverables to be developed or produced.
4. The WBS dictionary does not relate elements of work to be accomplished to each other and the overall end product.

9. Max. Threshold	10. Max. Tolerance	11. Weight
0		

12. Needed Artifacts and Data Elements

Y artifact(s)	X artifact(s)	FF data elements
FF01_{WBS}	scope documents (e.g., contract, PEP, PMP, conceptual design report,...)	FF01_{WBS}_[C]_WBS FF01_{WBS}_[D]_title FF01_{WBS}_[J]_WBS_narrative

13. Assumptions

DOE WBS handbook (for guidance)

14. Instructions

Determine Y items based on the following.

Count FF01_{WBS}_[C]_WBS items and, if identified, with the following characteristics.

- FF01_{WBS}_[D]_title <listing>
- FF01_{WBS}_[J]_WBS_narrative <listing>

Determine X items, a subset of Y, based on the following.

Manually count flagged items based on the following operation(s).

- 1. Products and deliverables listed in the PEP/PMP (and other scope documents) are not identified in the WBS dictionary.
  2. Product-oriented groupings of project scope elements in the WBS dictionary are not organized and subdivided to the total work scope as defined in the PEP/PMP (and other scope documents).
  3. The WBS dictionary does not define the products and deliverables to be developed or produced.
  4. The WBS dictionary does not relate elements of work to be accomplished to each other and the overall end product.

Determine if X or X/Y exceeds the threshold.

15. NDIA Reference(s)

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."

16. Revision Block

DOE EVMS .CSV Flat File Formats

DOE EVMS Metric Specification - data fields

FF	type	col.	name	description FF field nomenclature and variations	data type	example: csv	example: source, P6	example: source, Cobra	example: source, CloudEVM
FF01	**WBS**		**filename**	**WBS.csv**					
FF01	WBS		description	This csv file should be populated with the contractor WBS identifiers for the entire span of the entire span of the project (not the contract). The data should include all WBS identifiers in all other FFs.					
FF01	WBS		required data	The contractor WBS identifiers in a hierarchical structure from the project (not the contract) to the WP and PP level.					
FF01	WBS		relationships	OBS (WHERE TYPE = "CA") = OBS.OBS					
FF01	WBS	A	PARSID	PARS identifier for the project for which data is submitted. FF01_(WBS)_[A]_PARSID	INTEGER (6)	1024		UI INPUT FROM EXTRACTOR	
FF01	WBS	B	CPP_status_date	Contractor data-as-of-date. FF01_(WBS)_[B]_CPP_status_date	DATE (10)	01/31/2020		PROGRAM.STATUSDATE	
FF01	WBS	C	WBS	Unique contractor WBS identifier. The data should not be associated with MR, UB, contingency, or SM. FF01_(WBS)_[C]_WBS	VARCHAR (36)	01.06.01.02.01.01		BDNDETL.CODE	
FF01	WBS	D	title	WBS identifier title. FF01_(WBS)_[D]_title	VARCHAR (255)	Testing/Surveillance Improvements		BDNDETL.CODEDESC	
FF01	WBS	E	level	WBS identifier hierarchical level relative to the project. The data should have only 1 level 1 WBS identifier. FF01_(WBS)_[E]_level	INTEGER (2)	6		BDNDETL.BDN_LEVEL	
FF01	WBS	F	parent_WBS	WBS identifier of the immediate hierarchical parent. Blank for the level 1 WBS identifier. FF01_(WBS)_[F]_parent_WBS	VARCHAR (36)	01.06.01.02.01		BDNDETL.PARENT	
FF01	WBS	G	WBS_type	WBS type selection: • WBS = summary level (is above CA and SLPP) • CA = control account (is above WP) • SLPP = summary level planning package (is above PP and has no WP) • WP = work package • PP = planning package FF01_(WBS)_[G]_WBS_type	VARCHAR (4)	WBS		If BDNDETL.CODE = CAWP.[UDF.WP] then "WP"If BDNDETL.CODE = CAWP.[UDF.CA] then "CA"else "WBS"	
FF01	WBS	H	OBS	OBS identifier. FF01_(WBS)_[H]_OBS	VARCHAR (36)	NW.01.03.05		If this.TYPE = "CA" then CAWP.[UDF.OBS]else NULL	
FF01	WBS	I	CAM	CAM name. Format: [last name] space [first name] space [middle initial, optional] Do not use any special characters. FF01_(WBS)_[I]_CAM	VARCHAR (50)	Gutierez Jose		If this.TYPE = "CA" then CAWP.[UDF.CAM]else NULL	
FF01	WBS	J	WBS_narrative	WBS identifier description from the EVMS cost tool. For CA WBS, narrative should contain scope statement. For WP or PP WBS, narrative should contain exit criteria description. Do not use any special characters. FF01_(WBS)_[J]_WBS_narrative	NVARCHAR	Testing/Surveillance Improvements		BDNDTEL.CODEDESC	

FF01 WBS
FF02 OBS
FF03 COST
FF04 SCHEDULE
FF05 SCHEDULE_LOGIC
FF06 SCHEDULE_RESOURCES
FF07 IPMR Header
FF08 Format 1
FF09 Format 2
FF10 Format 3
FF11 CBB Log
FF12 CBB Log Detail
FF13 WAD
FF14 VARs
FF15 VAR Corrective Action Log
FF16 Subcontractor Reporting
FF17 Format 4
FF18 Format 5
FF19 Risk
FF20 Rates
FF21 Pricing
FF22 Blank
FF23 HDV/CI

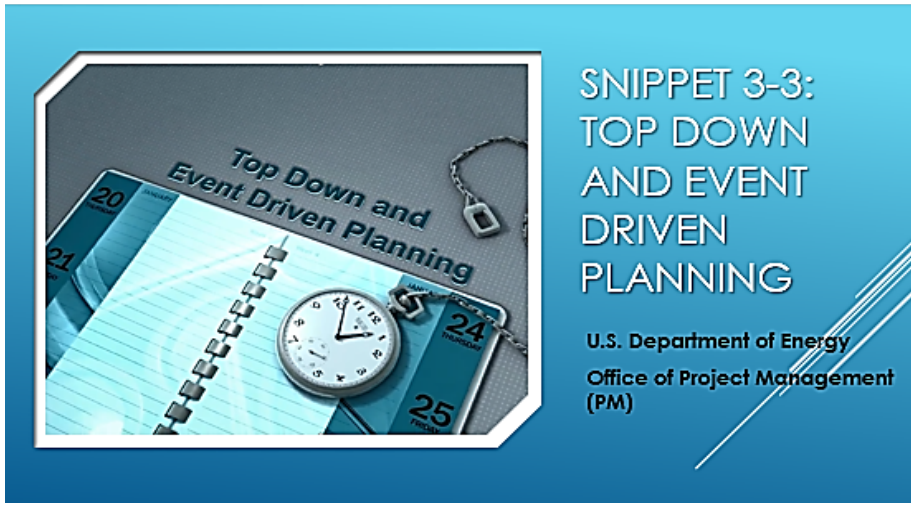
Snippets

DOE PM SNIPPETS

- **What are Snippets?**
  - Snippets are narrated videos on specific topics related to project management and EVMS
  - Available 24/7; average 10 to 20 minutes
- **Purpose**
  - To learn something new or provide a quick refresher
- **Audience**
  - Developed for DOE Federal staff and DOE Contractors working on EVMS applicable projects
  - Available to the public https://www.energy.gov/projectmanagement/evms-training-snippets
- **Prior effort**
  - 34 Snippets were released in 2014
  - Well received; Interest has been widespread across Government and Industry

DOE PM SNIPPETS

- **Current focus**
  - Improved Format
  - Updated Previous Snippets (some combined; some split into two parts)
  - Twenty New Topics!
- **Status**
  - Initial 17 Snippets: Planned for release in February 2020
  - Remainder: Planned for release throughout the coming months (approx. 50 total)
- **Pre-Release Sample**
  - Top Down Event Driven Planning



Snippets – 1. Overarching and 2. Organization

#	NAME
1-1	DOE O 413.3 EVM Requirements
1-2	DOE EVMS Compliance Approach
1-3	DOE EVMS Certification
1-4	Self-Governance
1-5A	Why Implement an Over Target Baseline/Over Target Schedule
1-5B	How to Implement an OTB/OTS
1-6	CAM Roles and Responsibilities
1-7	High Level EVM expectations
1-8	Integrated Baseline Review Process
1-9	Project Management and EVM Principles
1-10	Contractual Guidance for EVMS Projects
1-11	EVMS and PARS Applicability with Varying Contract/Project Structures
1-12	EVMS Procedural Processes and Flow (Description, Storyboard, and Compliance Review Checklist)
1-13a-j	Data-Driven Thresholds and How They Work series by area or process - set of 10
2-1	Work Breakdown Structure and WBS Dictionary
2-2	FFP Subcontracting and Prime EVM

Snippets – 3. Planning, Scheduling, and Budgeting

#	NAME
3-1	Budget vs Funds and the PMB
3-2	Earned Value Techniques and Quantifiable Backup Data
3-3	Top Down Event Driven Integrated Master Plan
3-4	Scheduled Health Metrics (referenced in 5-2)
3-5	Schedule Levels of Detail
3-6	Total Float and Critical Path Analysis
3-7	Planning Horizons (Rolling Wave)
3-8	Schedule of Values Method w/Zero Budget Activities
3-9	Schedule Assessment Reviews (SRA)
3-10	Undistributed Budget
3-11	LOE and Title III Construction Support
3-12	Agile
3-13	IMS Initial Baseline Review
3-14	IMS Monthly Review

Snippets – 4. Accounting and Indirects and 5. Analysis and Management Reports

#	NAME
4-1	Accruals and Estimated Actuals
4-2	Indirect Management (CAM, Mgr)
5-1	Periodic and Comprehensive Estimate at Completion (EAC)
5-2	Predictive Analysis Methods
5-3	Applied Predictive Analysis
5-4	FPD: Using the PARS(?)Data
5-5	IPMR Purpose and Use
5-6	IPMR FPD Quick Check
5-7	CFSR Overview & Reconciliation with IPMR
5-8	Common EVMS Findings

Snippets – 6. Revisions and 7. PARS/Empower

#	NAME
6-1	Baseline Freeze Period
6-2	Authorized Unpriced Work
6-3A	Concepts of MR vs Contingency
6-3B	MR vs Contingency Scenarios
6-4	Baseline Control Methods
7-1	PARS Monthly Analysis Reports Overview
7-2	PARS Monthly Analysis: Data Validity Reports
7-3	PARS Monthly Analysis: Schedule Health Assessment Reports
7-4	PARS Monthly Analysis: Variance Analysis Reports
7-5	PARS Monthly Analysis: Trend Reports
7-6	PARS Monthly Analysis: EAC Reasonableness and Independent EAC
7-7	PARS Monthly Analysis: PM Monthly Report

SOPs and Guides

DOE PM EVMS STANDARD OPERATING PROCEDURES (SOP)

- **Audience**
  - Mandatory for PM Staff
  - Guidance/Informative for DOE Contractors and Federal Project Staff
- **EVMS and Project Analysis SOP; DOE-PM-SOP-05-2020; 01/14/2020**
  - Focuses on monthly project performance assessment
- **EVMS Compliance Review SOP; DOE-PM-SOP-04-2018; 11/28/2018**
  - Focuses on all aspects of PM-30 Project Controls Division Certification and Surveillance
  - Update efforts underway
  - Forecast for release in 3Q of FY20
- **External Link:**
  - https://www.energy.gov/projectmanagement/services-0/earned-value-management

EVMS Project Analysis SOP

Earned Value Management System (EVMS)
and Project Analysis
Standard Operating Procedure
(EPASOP)

Issued by
Office of Project Management (PM)

DOE-PM-SOP-05-2020

January 14, 2020

1. PURPOSE. This EVMS and Project Analysis Standard Operating Procedure (EPASOP) serves as a primary reference for PM-20 when conducting project-level data analysis at the PMB level to support Monthly Project Assessments and other assessment needs. The results of the analysis and tools herein also support PM-30 EVMS Compliance Review data analysis (reference ECRSOP), and other project assessments where EVM data is contractually required. This SOP refers to several Project Assessment and Reporting System (PARS) reports and provides instruction on interpretation of data to support project performance, predictive analysis, and identification of concerns with the contractor's EVMS.

Table 1. Recommended PARS Empower Dashboards, Charts, Reports, Views

DASHBOARD	CHART	REPORT	VIEW
Data Validity	DOE Data Validity	Validity	DOE Data Validity
Schedule Health	DOE Schedule Health	Schedule Assessment	DOE Schedule Health
Variance Analysis	DOE Variance Analysis	Six Period Summary	DOE Variance Analysis
Trend Analysis	1. DOE Trend Analysis 2. Schedule Execution Indexes 3. MR-UB Trends	1. Earned Schedule 2. BCWS Volatility	1. DOE Trend Analysis 2. Earned Schedule
Forecast	DOE Forecast (EAC to IEACs)	1. Six Period Summary 2. AI Narrative Report (EAC Analysis)	1. DOE Forecast 2. CPI vs TCPI EAC

EVMS Compliance Review SOP

APPENDIX A: PM EVMS COMPLIANCE ASSESSMENT GUIDANCE

Below are three documents used to assist in determining compliance. To download the ECRSOP and open it in a pdf viewer, e.g. Adobe. Click on to the associated filename.

The embedded files include:

1. The PM Compliance Assessment Guidance for use in understan compliance to support the EIA-748 Guidelines.

   PM CAG 20181128

2. The PM EVMS Compliance Review Checklist (CRC) Exc documenting the review of the contractor's EVM System Descrip procedures under configuration control.

   PM CRC 20180911

3. The PM Guideline Attributes and Tests Excel file for use documenting the results of the automated and manual tests.

   PM GAT 20180911

Office of Project Management (PM)
Earned Value Management Systems
Compliance Review
Standard Operating Procedure
(ECRSOP)

Issued by
Office of Project Management (PM)
Project Controls Division

DOE-PM-SOP-04-2018

November 28, 2018

APPENDIX D: PM EVMS COMPLIANCE REVIEW TEAM TOOLKIT

Additional guidance, templates, and forms referred to or supporting the PM ECRSOP are available at:
https://www.energy.gov/projectmanagement/services-0/earned-value-management or
https://community.max.gov/display/DOEExternal/PM+EVM+Home.

Instructions for use of the templates are contained therein, and/or described in the ECRSOP Review process section. The templates below may change as needed to add, remove, or update. To view the Toolkit files, download the ECRSOP and open it in a pdf viewer, e.g. Adobe. Click on the paperclip next to the filename and it will open in its native software.

PM-30 compliance related toolkit files:

- PM Compliance Review Checklist (CRC) used to document EVM System Description reviews (see App. A)
- CAR/DR/CIO Form 20181029
- CAR/DR/CIO Log 20181029

APPENDIX F: PM COMPLIANCE REVIEW DATA CALLS

The following is the complete data call for an EVMS Certification Review (CR) during Phase 3, Data Analysis, Step 11. For other types of reviews, the data call will be limited to specific areas at risk of non-compliances. In all types of reviews, including CRs, the data call for Phase 5, On-Site EVMS Preparation and Review, Step 11, will focus on data-related concerns observed during Phase 3.

Item	Data
1	Contractor PARS Flat Files. Please provide applicable data in the 7 flat file tabs in RED and labelled as WBS, OBS, COST, SCHEDULE, LOGIC, RESOURCES, and IPMR as specified in the DOE PARS Flat File Format dated February 8, 2018 (*PARS Flat File Format – v1_1 20180208.xlsx* To view the PARS Flat File Format file, download the ECRSOP and open it in a pdf

DOE 413.3 Capital Acquisition Series Guides

- **Audience**
  - DOE Contractors and Federal Project Staff planning and executing capital acquisition projects subject to requirements of DOE Order 413.3B
- **DOE Guide 413.3-10B EVMS (DRAFT)**
  - Update of existing guide DOE G 413.3-10A (10/22/15)
  - Written with focus on integrated project management principles
  - Forecast for release in later 2020
- **DOE Guide 413.3-2X Planning and Scheduling (DRAFT)**
  - Development of a new guide
  - Integrates GAO Schedule Guide and PASEG with DOE acquisition lifecycle
  - Forecast for release in later 2020
- **External Link:**
  - https://www.energy.gov/projectmanagement/directives

DOE Guide 413.3-10B EVMS (DRAFT)

U.S. Department of Energy
Washington, DC

GUIDE

NOT MEASUREMENT SENSITIVE

DRAFT DOE G 413.3-10B

IPT Draft 04-15-2019
Approved: XX-XX-XXXX

EARNED VALUE MANAGEMENT SYSTEM (EVMS)

[This Guide describes acceptable, but not mandatory means for complying with requirements. Guides are not requirements documents and are not to be construed as requirements in any audit or appraisal for compliance with associated rules or directives.]

Integrated Project Management (IPM) Principles

IPM Principle 1: Establish a Culture of Self Governance

IPM Principle 2: Train for Proficiency

IPM Principle 3: Establish a Well-Developed Product Strategy

IPM Principle 4: Establish and Maintain Authorities and Responsibilities

IPM Principle 5: Plan a Time-Phased Budget

IPM Principle 6: Establish and Maintain the Baseline Through Change Control

IPM Principle 7: Separate Budget and Funds

IPM Principle 8: Integrate Scope, Schedule, and Budget

IPM Principle 9: Authorize Work

IPM Principle 10: Measure Performance

IPM Principle 11: Accumulate Costs

IPM Principle 12: Forecast the Future

IPM Principle 13: Make Decisions, Solve Problems, and Report

DOE Guide 413.3-2X Planning and Scheduling (DRAFT)

U.S. Department of Energy
Washington, DC

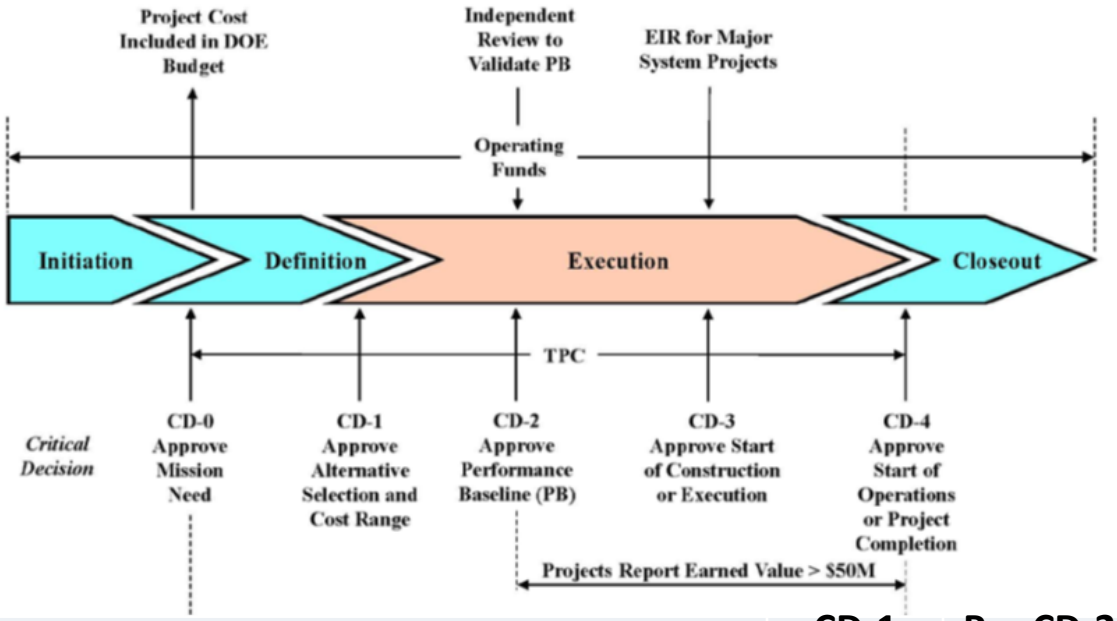
GUIDE

NOT MEASUREMENT SENSITIVE

DRAFT DOE G 413.3-2X

DOE G 413.3-2X, PLANNING AND SCHEDULING

[This Guide describes acceptable, but not mandatory means for complying with requirements. Guides are not requirements documents and are not to be construed as requirements in any audit or appraisal for compliance with associated rules or directives.]



GAO Best Practice	CD-1	Pre CD-2	Post CD-2
1 – Capturing All Activities	Limited	Full	Full
2 – Sequencing All Activities	Full	Full	Full
3 – Assigning Resources to All Activities	Limited	Full	Full
4 – Establishing the Duration of All Activities	Limited	Full	Full
5 – Verifying That the Schedule Can Be Traced Horizontally and Vertically	Full	Full	Full
6 – Confirming the Critical Path is Valid	Full	Full	Full
7 – Ensuring Reasonable Total Float	Full	Full	Full
8 – Conducting a Schedule Risk Analysis	Limited	Full	Full
9 – Updating the Schedule Using Actual Progress and Logic	Limited	Limited	Full
10 – Maintaining a Baseline Schedule	Limited	Limited	Full

QUESTIONS