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Designing a Tailored EVMS

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U.S. DEPARTMENT OF ENERGY

NNSA National Nuclear Security Administration

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Vicki Frahm Biography

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Degree:

- BA in Business Administration
- MIS in Computer Information Systems

University:

- BA Business Administration – Sterling College, Sterling, KS
- MS Computer Information Systems – University of Phoenix

Years of Experience:

- 32 years' experience
  - The Boeing Company – Earned Value Management
  - Bombardier Aerospace – Project Management
  - Honeywell – Earned Value Management
  - Sandia Corporation – Earned Value Management

Professional Field:

- Earned Value Management Systems (EVMS)

Something you do not know about me:

- I am currently working on a PhD in Project Management (Capella University)

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INTRODUCTION

Introduction

Earned Value Management System (EVMS)

- Multidimensional project controls methodology integrating project
  - Cost
  - Schedule
  - Scope
- Required by the Federal Acquisition Regulations (FAR) on large, cost type projects
- Tailored version appropriate for smaller contracts or fixed price contracts
- EV-lite vs. Tailored EVMS
  - EV-lite – eliminate some of the criteria
  - Tailored EVMS – adapt the criteria

Introduction

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Earned Value Management System (EVMS)

- Defined by ANSI-748 EVMS – 32 criteria in 5 process areas
  - Organization
  - Planning, Scheduling, and Budgeting
  - Accounting Considerations
  - Analysis and Management Reports
  - Revisions and Data Maintenance

This presentation proposes that although the system designers and implementers must understand the intent of the criteria, the implementation focus should be on key artifacts.

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THE ARTIFACTS

Required Artifacts

Key artifacts:

- Work Authorization Documentation
- Scope Documentation
- Organizational Charts
- Project Schedule
- Resource Plan
- Actual Cost Data
- Change Control Documentation
- Project Performance Reports

Artifact Cross-Reference

Project Management Process Group (PMBOK)	Earned Value Process Group (ANSI-748)	Artifact
Initiating		
Develop Project Charter	Organization	Work authorization documentation
Planning		
Define Scope	Organization	Scope documentation / WBS
Create WBS	Organization	WBS
Develop Schedule	Planning, Scheduling, & Budgeting	Schedule
Determine Budget	Planning, Scheduling, & Budgeting	Resource plan
Executing		
Acquire project team	Organization	Project organization charts
Monitoring & Controlling		
Perform Integrated Change Control	Revisions & Data Maintenance	Change control documentation
Control Scope	Planning, Scheduling, and Budgeting	WBS
Control Schedule	Planning, Scheduling, and Budgeting	Schedule
Control Costs	Planning, Scheduling, and Budgeting	Resource plan
	Accounting Considerations	Actual cost data
Report Performance	Analysis and Management Reports	Project Performance Reports

Required Artifacts

Work Authorization Documentation

Purpose: Ensure that organizational resources are only spent on authorized projects.

- Project charter and/or other documents as defined by the organization
- Useful fields:
  - Project budget
  - Key project milestones
  - Project deliverables

Required Artifacts

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Scope Documentation

Purpose: Define project deliverables.

- May include products and/or services
- Typically defined in the work breakdown structure (WBS)
- Provides framework for other EVMS artifacts

Required Artifacts

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Organizational Charts

Purpose: Define who is responsible for ensuring the work is accomplished.

- Project manager and/or
- Lower level managers responsible for individual WBS elements
  - Leads to creation of control accounts
  - Use responsibility assignment matrix (RAM) to document relationship between WBS and OBS

RAM	OBS 1	OBS 2	OBS 3
WBS A	X		
WBS B		X	X
WBS C	X		
WBS D	X	X	
WBS E		X	
WBS F			X

Required Artifacts

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Project Schedule

Purpose: Define sequence of work and interdependencies between work tasks.

- Organized around project WBS
- Organized around project OBS
- Organized around project control accounts – if used
- Serves as basis for:
  - Allocating resources
  - Analyzing staffing requirements
  - Collecting project status for earned value metrics
  - Assessing potential risk impacts
  - Integrating subcontractor and contractor schedules

Required Artifacts

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Resource Plan

Purpose: Define all resources required to achieve project objectives consistent with project schedule.

- Organized around project WBS
- Organized around project OBS
- Organized around project control accounts – if used
- Represents project planned value (PV)
- When project percent complete is applied based on schedule status, serves as basis for calculating project earned value (EV)

Required Artifacts

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Actual Cost Data (AC)

Purpose: Record how many resources have been used so far to accomplish project work.

- Must be able to identify costs at least to the project level – preferably to the WBS level.
- When comparing PV, EV, and AC, ensure dollars are at the same level.
  - Burdened
  - Unburdened
- Develop a method for recognizing costs that have been accrued but not yet recorded in the accounting system.

Required Artifacts

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Change Control Documentation

Purpose: Document and control changes to project scope, schedule, budget, and actuals.

- Ensures changes are authorized
- Ensures changes are reflected in all artifacts
- Failure to appropriately capture changes will invalidate performance data
  - Inaccurate schedule variances
  - In ability to correctly forecast schedule impacts
  - Over or under stated cost variances

Required Artifacts

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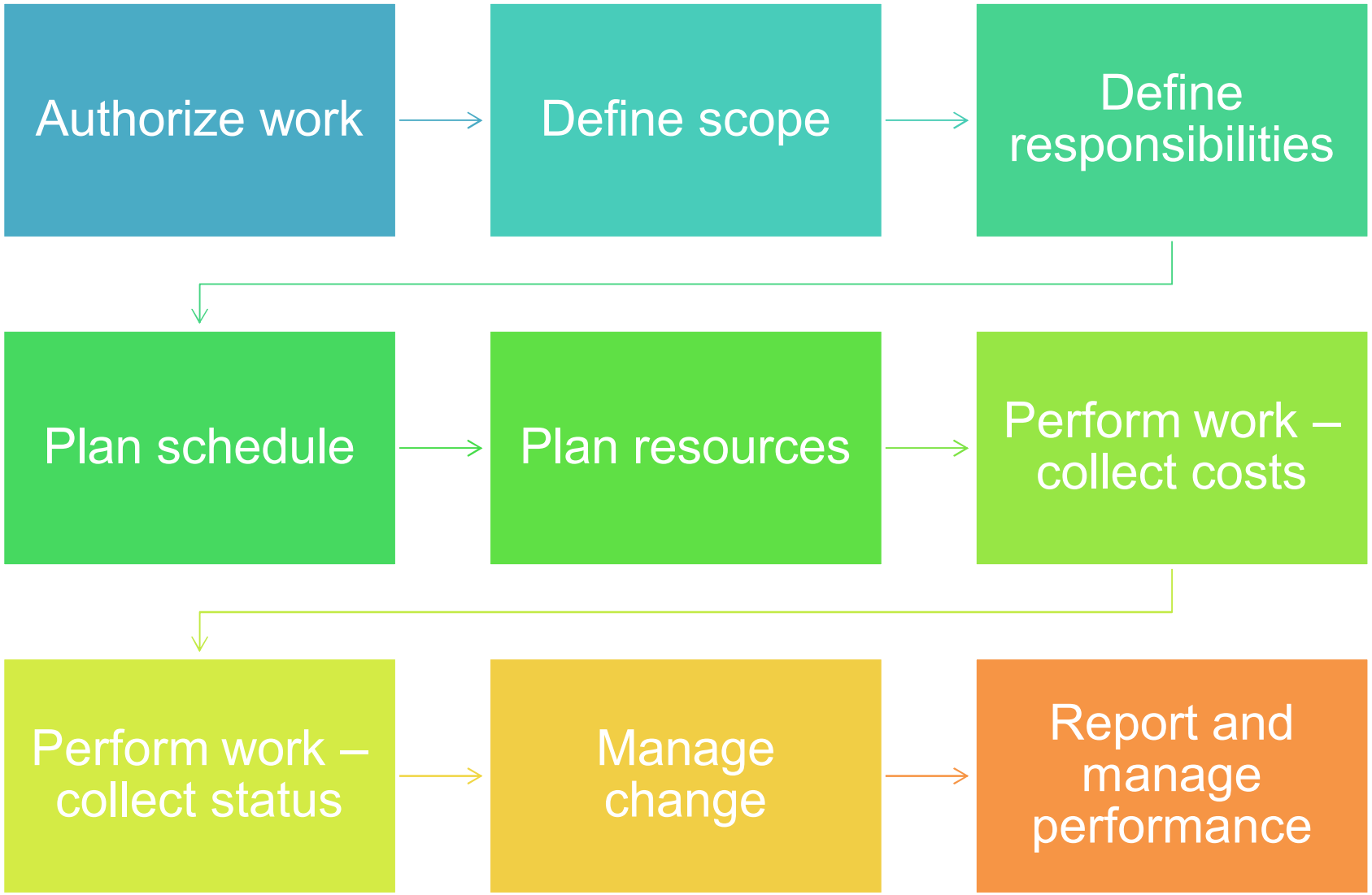
Project Performance Reports

Purpose: Communicate project performance data.

- Includes:
  - Cost and schedule variances (CV and SV)
  - Cost and schedule performance indices (CPI and SPI)
  - Estimates to complete and variances at completion (VAC)
  - Independent estimates at completion (IEAC)
  - To complete performance indices (TCPI)
  - Early and late schedule starts and completions
  - Schedule look-aheads

Process


Authorize work
Define scope
Define responsibilities
Plan schedule
Plan resources
Perform work – collect costs
Perform work – collect status
Manage change
Report and manage performance

DESIGNING & IMPLEMENTING THE TAILORED EVMS

Designing the Tailored EVMS

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Design Process

- Startup
  - Approach design and implementation as a project.
  - Do not overcomplicate the design.
- Educate design and implementation team on earned value concepts and intent.
- Outline the Tailored EVMS process.
- Identify existing processes, procedures, and artifacts.
- Identify the gaps.
- Document the tailored EVMS process.

Designing the Tailored EVMS

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Outline the Proposed Tailored EVMS

- Outline how the tailored EVMS will look.
  - Authorization
  - Scope definition
  - Scope responsibility
  - Schedule and resources
  - Cost collection
  - Change control
  - Performance tracking
  - Estimate to complete preparation
  - Performance report preparation and distribution

Designing the Tailored EVMS

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Identify existing policies, procedures, and artifacts.

- Documented “how-to’s”
- Undocumented “this is how we really do it”

Interview project managers and other key stakeholders

- Ask a lot of questions – of the people and of the data.
  - Is there a work authorization process in place? What does it include?
  - Is there a project WBS? Who owns the WBS?
  - Are project schedules in place? At what level of detail? Are they resource loaded? Who owns the schedule?
  - How does the accounting system work? How are changes handled?
  - What performance reports does management currently use?
  - What accounting, scheduling, EVMS, etc. tools are in place?
  - What training will be required?

Designing the Tailored EVMS

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Identify the gaps.

- What artifacts currently exist?
- What artifacts don't exist?
- What can you live with – at least temporarily?

As much as possible, at least initially, stay within existing processes, procedures, and artifacts – A phased implementation may be required.

Designing the Tailored EVMS

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Refine the outline and document the Tailored EVMS

- May include multiple documents
  - Capture gaps and interview findings
  - Document workarounds
  - Document the EVMS process
- Provides tool to communicate new processes
- Does not need to be perfect – it will change
- Document end state vision
  - Expected benefits
  - Proposed tool suite
  - Long term objectives

Implement, Validate, and Modify

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Implementation

- Conduct kickoff meeting(s)
  - Process overview
  - Implementation schedule
  - Impact to project team
  - Expected benefits
  - Who to call with suggestions and complaints
- Conduct training
- Provide project support

Implement, Validate, and Modify

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Validation and modification

- Identify what works and what doesn't.
- Modify as required – keeping the end state vision in mind.
- For phased implementations, identify modifications to go-forward plan.
- Implementing the EVMS is an iterative, learning process.

Be patient, keep a sense of humor, and, if possible, do not completely alienate the project managers!

Questions