



**Project Management Institute**

# **PRACTICE STANDARD FOR EARNED VALUE MANAGEMENT**

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**Second Edition**



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## PREFACE

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The *Practice Standard for Earned Value Management*—Second Edition is a complement to *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*.

In April 2010, Dr. Lingguang Song of the University of Houston released the results of a comprehensive PMI College of Performance Management (as the PMI EVM Community of Practice was then known) funded research survey managed by the PMI Research Foundation. This research comprehensively examined the global practice of earned value management (EVM) with the findings published in a book entitled *Earned Value Management: A Global and Cross-industry Perspective on Current EVM Practice*.

In that study one of the many important conclusions was that “EVM’s contributions and cost effectiveness are widely recognized by all users regardless of their industry sector, motivation, and country.” Other significant findings include EVM users in general “agree” to “strongly agree” with EVM’s contributions to providing early warning, helping to achieve cost goals, improving communication, helping to achieve schedule goals, and improving scope management. Dr Song’s research also concluded, based on a sample size of over 700 respondents that the *Practice Standard for Earned Value Management* is the most widely used and influential standard in the global EVM community.

This second edition of the practice standard expands greatly on the foundation established by the previous edition by implementing a process approach to assist in understanding and application of earned value management.

The overarching goal of this practice standard is to facilitate improvement in project performance outcomes by encouraging the use of EVM on projects. The intent is to expand upon the concept of EVM as presented in the *PMBOK® Guide* in a way that allows for easy understanding and implementation.

The *Practice Standard for Earned Value Management* is organized into the following chapters:

- **Introduction.**
- **Earned Value Management Overview**—outlines the basic principles and concepts of earned value management.
- **Organize Project**—covers the process of developing a detailed description of the project and explains the importance of the work breakdown structure (WBS), the WBS dictionary, and the scope baseline.
- **Assign Responsibility**—explains the importance of identifying the individuals responsible for all aspects of project execution.
- **Develop Schedule**—provides a brief treatment of the project schedule and is the first document that measures all of the work that constitutes the project scope. This chapter also covers the schedule baseline.

- **Establish Budget**—covers the natural extension of the schedule baseline into a cost baseline. Includes cost estimating, work authorization, and the project budget log.
- **Determine Measurement Methods**—describes the processes and considerations of choosing the appropriate earned value measurement technique for determining earned value (EV). This chapter includes an explanation of the three classes of work (discrete, apportioned, and level of effort).
- **Establish the Performance Measurement Baseline**—covers the process of integrating the scope, schedule, and cost baselines into a single project baseline to manage, measure, and control project performance throughout execution. This chapter also covers the contingency and management reserves, undistributed budget, and rolling wave planning.
- **Analyze Project Performance**—explains how to use the outputs of an earned value management system to assess and forecast project cost and schedule performance. This is the longest chapter in the practice standard and includes a thorough coverage of the EVM metrics, including the graphical presentation of EVM data plus a tutorial on the meaning of the various EVM metrics and predictors.
- **Maintain Performance Measurement Baseline**—describes the process of managing changes to the project scope and maintaining the integrity of the performance measurement baseline.

In addition to the ten chapters that cover the core concepts of EVM, there are three appendices that have been written for the purpose of bringing additional insight to some of the specialized and topical areas with EVM:

- **Appendix D—Schedule Analysis Using Earned Value Data**
- **Appendix E—Integrating Earned Value Management with Risk Management**
- **Appendix F—Deployment of Earned Value Management Systems**
- **Appendix G—Pitfalls and Recommendations**

Throughout this practice standard we used a “single thread example” of a bicycle project to illustrate and explain the concepts and application of the Earned value method. This model of building a bicycle was utilized from the start to illustrate the development of the WBS all the way through to the final chapter where it is used to demonstrate the impact of changes to the project’s cost and schedule baselines.

This practice standard is consistent with the *PMBOK® Guide*. It was developed with the global project management community in mind with the intent that the EVM concepts presented are applicable to projects of various sizes and complexity in a broad scope of industries in the government, commercial and nongovernment organization sectors.

The Project Management Institute’s standards program will continue to periodically update this standard as part of the overall planned evolution of PMI standards. Comments from project management practitioners are both requested and welcome.

# CHAPTER 1

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## INTRODUCTION

The *Practice Standard for Earned Value Management*—Second Edition has been developed as a supplement to *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* [1].<sup>1</sup> A practice standard is a document that describes established norms, methods, processes, and practices. The information in this practice standard evolved from the recognized good practices of earned value management (EVM) project management practitioners. It reflects what are considered to be best practices on projects that use earned value management techniques. The practice standard provides guidelines for managing individual projects. It does not provide information on managing programs or portfolios of projects.

This practice standard is designed to provide readers who are familiar with the fundamental practices of project management, as outlined in the *PMBOK® Guide*, with a practical understanding of the principles of EVM and its role in facilitating effective project management.

This is the second edition of this practice standard and builds on the work from the previous edition. It expands on many of the concepts and provides information about the infrastructure and processes necessary to conduct earned value management effectively. The second edition is completely reformatted to follow a process orientation.

### 1.1 Purpose of this Practice Standard

The *Practice Standard for Earned Value Management* identifies a subset of project management practices that are used for earned value management.

The *Practice Standard for Earned Value Management* also promotes a common vocabulary. The definitions of key terms are aligned with the *Lexicon*, although not all vocabulary and definitions used in this practice standard are in the *Lexicon*.

This practice standard is not intended to be all-inclusive. There are many different methodologies and tools for implementing the processes described in this practice standard.

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<sup>1</sup> The **boldface** numbers in brackets refer to the list of references at the end of this practice standard.