

Fundamentals of Project Performance Measurement

Seventh Edition
With Comments by Gary C. Humphreys



Robert R. Kemps

HUMPHREYS & ASSOCIATES

© 1992, 2016 Gary C. Humphreys,
Humphreys & Associates, Inc.

All rights reserved. No part of this publication may be reproduced,
distributed, or transmitted in any form or by any means without the
written permission of the author.

First edition published 1992. Revised 1996, 2000, 2004, 2007, 2011,
and 2016.

Printed in the United States of America

Humphreys & Associates, Inc.
9910 Research Drive
Irvine, CA 92618 USA
(714) 685-1730
humphreys@humphreys-assoc.com
www.humphreys-assoc.com

Library of Congress Catalog-in-Publication Data
Kemps, Robert R. (Robert Raynier), 1934-
Fundamental of Project Performance Measurement
by Robert R. Kemp

p. cm

Includes Index.

ISBN 978-0-9965479-1-8 (hardback)

ISBN 978-0-9965479-2-5 (ebook)

1. Industrial Project Management.

2. Industrial Development Projects--Evaluation.

I. Title

HD69.P75K456 1992

858.4'04--dc20

Fundamentals of Project Performance Measurement

...explains the important elements of *project cost/schedule management* in a concise and straightforward way without falling back on the jargon often associated with the subject.

...emphasizes the use of the *earned value technique* as a logical and meaningful way to present cost and schedule status for management and estimating purposes.

...is *profusely illustrated*, numerous examples are used to clarify concepts and cogent reasons are given for why management systems should possess specific capabilities.

Here is a text that can be read and understood easily; a rarity in today's complex management environment.

Table of Contents

List of Figures.....	vii
Preface.....	ix
Chapter 1 Introduction	1
Chapter 2 Understanding the Project	7
Chapter 3 Organizing for the Project.....	11
Chapter 4 Scheduling.....	15
Chapter 5 Budgeting	21
Chapter 6 Establishing the Baseline	25
Chapter 7 Detailed Planning.....	33
Chapter 8 Measuring Performance with Earned Value	39
Chapter 9 Accounting	43
Chapter 10 Data Collection	49
Chapter 11 Estimating Cost at Completion.....	55
Chapter 12 Change Control.....	61
Chapter 13 Baseline Maintenance	67
Chapter 14 External Reporting	73
Chapter 15 Graphic Presentation of Data.....	79
Chapter 16 Earned Value Management Systems Guidelines.....	85
Abbreviations and Acronyms	97
Glossary.....	101
Index	109
About the Author	117

List of Figures

Figure 1-1	Project Cost Report	2
Figure 1-2	Cost/Schedule Performance	3
Figure 1-3	Project Schedule	5
Figure 2-1	Work Breakdown Structure (WBS).....	8
Figure 2-2	Contract Work Breakdown Structure (CWBS).....	10
Figure 3-1	Organization Breakdown Structure (OBS)	12
Figure 3-2	Responsibility Assignment Matrix (RAM).....	13
Figure 4-1	Schedule Vertical Traceability	18
Figure 5-1	Resource Leveling	23
Figure 5-2	Budget Allocation.....	24
Figure 6-1	Performance Measurement Baseline.....	26
Figure 6-2	Realistic Baseline.....	28
Figure 6-3	Front Loaded Baseline	29
Figure 6-4	Project Funding versus the Baseline	30
Figure 7-1	Control Account Plan.....	34
Figure 7-2	Control Account Plan.....	38
Figure 8-1	Control Account Plan.....	41
Figure 9-1	Material Time Phasing.....	45
Figure 9-2	WBS/OBS/Cost Element Identification.....	47
Figure 10-1	Control Account Status	50
Figure 10-2	Cumulative Performance.....	51
Figure 10-3	Performance Report	52
Figure 10-4	Summarization of Data	53
Figure 10-5	Interpretation of Data.....	54

Figure 11-1	Estimate Based on Baseline Achievement.....	57
Figure 11-2	Estimate Based on Continuance of Actual Performance	58
Figure 11-3	Estimate Based on Combined Cost and Schedule Performance	59
Figure 12-1	Incorporation of External Changes.....	62
Figure 12-2	Contract Budget Base Log	63
Figure 12-3	Internal Replanning and Management Reserve.....	64
Figure 12-4	Internal Replanning – Rephasing Work or Budget	65
Figure 13-1	Over Target Baseline (Cost and Schedule Variances Eliminated).....	70
Figure 13-2	Contract Budget Base	71
Figure 14-1	Performance Report	75
Figure 14-2	Baseline Report	76
Figure 15-1	Cumulative Performance	80
Figure 15-2	Cost and Schedule Variance Trends.....	81
Figure 15-3	Actual versus Projected Performance.....	83

Preface

This book is an excellent place to start for those who wish to learn more about project performance measurement and will be useful to representatives of each of the disciplines that contribute to the success of a project. A clear understanding of the fundamentals of project performance measurement is essential to effective project management. However, this understanding is as essential for managers and staff that must use the project management system on a daily basis as it is for higher level managers and their customers. It is an engineering axiom that the better a process can be measured, the better it can be controlled. In *Fundamentals of Project Performance Measurement*, Bob Kemps teaches us that project performance is no exception.

Project Performance Measurement, once a little known and poorly understood project management process, has now become a way of life throughout the research and development, production, energy, and construction communities. Arguments that once raged over whether it could be done at all, now focus on how best to use the data from established performance measurement systems. Individuals once responsible for introducing performance measurement systems, often in the face of considerable opposition, are responsible for managing entire projects. Project managers that have not learned the value of these systems are finding themselves at a considerable disadvantage, not only in dealing with internal and external competition for increasingly scarce resources, but also in satisfying the needs of increasingly knowledgeable customers.

High ranking government officials can speak with ease of the output of performance measurement systems and have done so in televised congressional hearings. The governments of Australia, Canada, Europe,

Sweden, United Kingdom, and Japan, among others, have shown considerable interest in establishing performance measurement standards; and some are surpassing the United States in the quality of the implementation of those standards. Commercial enterprises at home and abroad are adopting performance measurement systems for themselves in response to market pressure to do a better job of managing projects. Even government agencies that are seeking to free their managers and contractors of some of the strict discipline of cost/schedule planning and controls continue to recognize the value of performance measurement systems.

It is against this background that Bob Kemps' primer on project performance measurement comes to us. He calls upon his many years in the field to remind us that despite the contribution that performance measurement systems have made to the art of project management, and despite the regard those systems have won for their users, there is no magic here. *Fundamentals of Project Performance Measurement* explains in simple terms the underlying concepts that combine to create the sound systems that produce the data so essential to the cost, schedule, and technical trade-offs of the project manager's craft. This book treats as especially important the process of combining those simple concepts and does not allow us to fall victim to the belief that it can be done easily and without the involved contributions of the entire project team or, as Bob would say, without discipline.

Gary C. Humphreys
Humphreys & Associates, Inc.
