JEREMIE AVEROUS

Practical Cost Control Handbook for Project Managers

Second Edition

JEREMIE AVEROUS

Practical Cost Control Handbook for Project Managers



A Practical Guide to Enable Consistent and Predictable Forecasting for Large, Complex Projects

Second Edition



© Jeremie Averous & Project Value Delivery

Second Edition - 2020

Published by Fourth Revolution Publishing, Singapore A trademark of Fourth Revolution Pte Ltd 8 Burn Road #08-02/03 Singapore 369977, www.FourthRevolutionPublishing.com All rights reserved.

Except for short excerpts used for illustration or educational purposes, which then shall reference the original book, no part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the Publisher, Fourth Revolution Publishing – contact@thefourthrevolution.org

While the publisher and the author have used their best efforts in preparing this book, they make no representation or warranties with respect to the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives or written sales material. The advice and strategies contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor the author shall in any event be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

URLs have been checked at the time of writing of this book and the publisher has no responsibility for the persistence and/or accuracy of these links.

In this book, the alternating of gender in grammar is utilized. Any masculine reference shall also apply to females and any feminine reference shall also apply to males

This book has been sponsored by Project Value Delivery, a leading consulting company in the field of Project Management for Large, Complex Projects.

www. Project Value Delivery. com - contact @Project Value Delivery. com



We Empower Organizations to be Reliably Successful in Executing Large, Complex projects.

Discover more on www.ProjectValueDelivery.com

This book is available both in paperback format and Kindle e-format, through all e-bookstores including Amazon, Barnes & Noble, etc.

Contact us for bulk orders or customised editions!

ISBN: 978-981-14-5663-3 ISBN e-book (Kindle): 978-981-14-5664-0

Published in Singapore.

Second edition – Print on Demand, June 2020 / worldwide availability on all e-bookshops through LightningSource.



We can Customise this Handbook for your Organisation

We have found that organisations find great value to have their own internal handbooks to cover project control

issues. These full-colour, custom-branded handbooks can be spread to a wide population.

Thanks to our publishing partnership, this generic handbook has been successfully customised and printed in many hundreds of copies for some major global project-driven businesses.

Conducted after a careful review of the organisation's particularities, and tailored to respond to your needs, such a customisation includes:

- Specific systems and processes,
- Specifics of the industry and construction context. Contact us for a customisation project.

Get Advanced Training delivered

The best practice concepts of this handbook get best spread in your organisation through training programs. We deliver trainings globally based on the contents of this handbook and customised to your particular needs.

Contact us for a training project to bring your organisation to the next level in terms of Cost Control.

Contact

Contact @ ProjectValueDelivery.com



We Empower Organizations to be Reliably Successful in Executing Large, Complex projects.

Discover more on www.ProjectValueDelivery.com

In the Same Series

- The Pocket Guide for those Daring Enough to Take Responsibility for Large, Complex Projects by Jean-Pierre Capron
- 2. Project Soft Power, Learn the Secrets of the Great Project Leaders by Jeremie Averous
- 3. Practical Cost Control Handbook for Project Managers, a Practical Guide to Enable Consistent and Predictable Project Forecasting by Jeremie Averous
- Practical Project Risk Handbook for Project Managers, a
 Guide to Enhance Opportunities and Manage Risks
 on Projects
 by Jeremie Averous
- 5. Advanced Scheduling Handbook for Project Managers, *a Practical Navigation Guide on Large, Complex Projects* by Jeremie Averous with Thierry Linares
- 6. Practical Project Control Manager Handbook, from Back-Office Manager to Trusted Project Strategist by Jeremie Averous
- 7. Industrial Projects Practical Owner Guide, Securing your Capital Investment
 by Jeremie Averous

And more to come...

Discover the latest publications and more on:

www.ProjectValueDelivery.com

Contents

PREFACE TO THE SECOND EDITION	1
FOREWORD TO THE SECOND EDITION BY PIERRE PÉNICAUT, HEAD OF PROJECT CONTROL, TOTAL	3
FOREWORD TO THE FIRST EDITION BY BRUNO CHABAS, CEO, SBM OFFSHORE	5
INTRODUCTION TO PROJECT COST	
CONTROL	7
What is the Issue?	7
Keeping the eye on the Cost Control basics	8
A practical handbook	
The Handbook's Structure Topics not covered in this handbook	10
Who is this handbook for?	11
CHAPTER 1: WHAT IS COST CONTROL IN	
PROJECTS?	13
What is exactly the purpose of project Cost Control?	13
Cost Control in the wider context of Project Control	14
Essential differences between Accounting and Cost Control	15
What should be the profile of a Cost Controller for a project?	19
The Project Cost Controller training and development	20
Why Finance and Cost Control roles should be neatly separated in the organisation	21
What differentiates Cost Control for Large, Complex	_
Projects?	24
Conclusion	26
CHAPTER 2: COST CONTROL GOLDEN	
PIII FS	27

CHAPTER 3: ESTIMATING BASIC	
EXPECTATIONS	31
Estimating basics and maturity expectations	31
Checking the quality of a project budget estimate	32
Benchmarking	34
Conclusion	35
CHAPTER 4: COST CONTROL AT PROJECT	
START-UP	37
Introduction	37
Transfer of estimating information	38
Coordination with the other project functions	46
Systems and processes setup	50
About the organisation of Cost Control on large projects	52
Conclusion	53
CHAPTER 5: COST CONTROL DURING	
PROJECT EXECUTION	55
Precision or Accuracy?	55
Taking into account the interface between stages:	
consequential variances	56
Project Maturity and the transition to ETC reforecasting focus	57
Cost Control at Engineering Stage	58
Cost Control at Procurement Stage	59
Cost Control at Fabrication Stage	65
Cost Control at Construction and Commissioning Stage	66
Cost Control at Close-out Stage	72
Conclusion	76
CHAPTER 6: FORECASTING	77
Conditions for Forecast quality	77
Reconciliation with Accounting – a useful reality check	80
The Two Forecasting Approaches	83
Type 1 Forecasting: Quantity-based forecasting	84
Type 2 Forecasting: Progress-based forecasting	89
Keeping track of all variances	92
Conclusion	93

CHAPTER 7: PRACTICAL FORECASTING BY	
TYPE OF COST	95
Project Management	95
Engineering	96
Simple and Bulk Procurement	99
Complex Item Procurement	100
Contracts for Services and logistics	102
Fabrication	103
Construction operations	105
Commissioning operations	107
Dealing with contractor Variation Orders and Claims	108
Allowances, Contingency and Other costs	109
Forecasting for revenue (Contractors)	112
Conclusion	114
CHAPTER 8: REFLECTING FORECASTS IN	
THE PERIODIC PROJECT REPORT	115
Cost Control information to be included in the Periodic	
Project Report	115
The two important inputs into financial forecasting: EAC and 'Achievable'	120
Principles of re-forecasting for EAC	121
Contractor-specific: Principles of Revenue Re-Forecasting	122
Principles of contingency release	124
Reforecasting and project dynamics	126
Conclusion	130
CHAPTER 9: TIME PHASING OF ESTIMATES:	
CRITICALITY AND TRAPS	131
Time-phasing of costs: principles	131
Issues with cost time-phasing	135
Owner specific: Value of Work Done concept and	
measurement	136
Contractor specific: time-phasing of revenue and cash flow	
generation	138
Conclusion	139

CHAPTER 10: CONTRACTOR-SPECIFIC:	
PERCENTAGE-OF-COMPLETION	
ACCOUNTING	141
Introduction	141
Basis of the POC method	141
Instability of financial results due to POC accounting Principles of Multi-Entity Percentage-of-Completion	144
accounting	149
Conclusion	153
CHAPTER 11: ELEMENTS OF MULTI-	
CURRENCY COST CONTROL	155
Introduction	155
Principles of Multi-Currency Accounting	155
Project performance data gathering and reporting principles	156
Currency Exchange Rate Hedging	156
The need for advanced processes and systems	159
Conclusion	160
CHAPTER 12: FORENSIC ANALYSIS OF	
PROJECT COST CONTROL	161
It always starts with a surprise	161
The psychological factor: denial, self-deception and other	
aspects	163
Failure Modes for the Cost Control Process	165
Level 1 checks – Quality of Commitments and Actuals	166
Level 2 checks – Quality of Forecast	169
Level 3 checks – Quality of decision support	175
Conclusion	176
CONCLUSION: COST CONTROL, A	
STRATEGIC FUNCTION FOR PROJECT	
SUCCESS	177

APPENDIX 1 MONTHLY COST CONTROL		
CHECKLIST	181	
APPENDIX 2 PROJECT STAGES COST		
CONTROL CHECKLISTS	185	
At Startup Stage	180	
At Engineering Stage	188	
At Procurement Stage	190	
At Fabrication / Worksites Stage	192	
At Construction Stage	194	
At Close-Out Stage	197	
APPENDIX 3: EARNED VALUE		
MANAGEMENT	199	
ABBREVIATIONS AND GLOSSARY	209	
USEFUL REFERENCES	214	
ACKNOWLEDGMENTS	215	
TABLE OF FIGURES	216	
INDEX	217	

Preface to the Second Edition

After six years and more than 2,000 handbooks sold globally to project control professionals in various formats (public and customised), it was time to refresh this reference book.

The main concepts developed in the handbook have proven to be remarkably robust and well adapted to many situations and industries during trainings, reviews and process improvement work. However, the initial handbook had been written more from the perspective of the contractor than from the perspective of the owner. This second edition expands with complements for the owner and clarifies which concepts are specifically applicable for contractors only. Most of the book remains applicable for owners who always have to control their own reserved scope in addition to managing contractors.

More details have also been included in a number of areas, notably estimating and cost control infrastructure setup.

We hope that this refreshed handbook will continue to be a worthwhile reference to Cost Controller practitioners globally.

> Jeremie Averous Founder, Project Value Delivery Paris, June 2020

Table of Figures

Figure 1: Principle of Resource Rates and Over/ Under	
Recovery	18
Figure 2: Typical Work Breakdown Structure	
(contractor)	39
Figure 3: Typical Work Breakdown Structure (owner)	40
Figure 4: Breakdown Structure Detail Optimal Range	41
Figure 5: Precise versus Accurate	56
Figure 6: Budget, Commitments, Actual and Invoiced	
Cost	81
Figure 7: Reconciliation Process between Cost Control	
and Accounting	83
Figure 8: Forecasting Bulk Quantities	85
Figure 9: Two Legs to a Sound Forecast	90
Figure 10: Treatment of Unsigned Variation Orders	123
Figure 11: Contingency management throughout the	
project lifecycle	125
Figure 12: Owners: Evolution of Cost and Contingency	
during a project lifecycle	128
Figure 13: Owners: Evolution of Achievable Cost during	
a project lifecycle	128
Figure 14: Contractor: Evolution of Cost, Contingency	
and Revenue during a project lifecycle	129
Figure 15: Contractor: Evolution of Achievable Cost and	
Revenue during a project lifecycle	129
Figure 16: Typical best practice POC equivalent curves	143

Index

D

Data Integrity

Principle, 29

A Achievable Forecast, 29, 120 vs EAC. See Forecasting Actual Cost (AC), 91, 177 Allowances Time Phasing, 134 B Bid Comparisons. See Supply Chain Breakdown structure, 38 Changes, 64, 71 CTR Cost-Time-Resource, 41, 59, 96 Key Characteristics, 41 Level of detail, 40, 59, 96 Maintenance of Consistency, 50 Type of Main Contract, 43 Types, 39 WBS, 38 Breakdown Structure Multi-Entity, 153 Budget	Cost Control Definition, 13 Failure Modes, 165 Forecasting focus, 27, 177 Process customization, 51 Profile and Training, 20 Surprises, 161 Team organization on large projects, 52 vs Accounting, 15 within Project Controls, 14 Cost Control interfaces Finance, 49 Schedule, 28, 48, 67, 68 Scope, 28 Supply Chain, 60 Supply Chain – contracting strategy, 46 Cost Control Tools Multi-Entity, Multi-Currency, 159 Specifications, 24 Timesheet system, 58 Cost Engineering. See Cost Control
Breakdown Structure Multi-Entity, 153	Timesheet system, 58

Commitment
Recording process, 47
Tracking, 29, 61, 67, 71, 91
Contingency
Re-forecasting, 109

Candidness Principle, 28, 163

Release strategy, 72, 124

Time Phasing, 134

© Project Value Delivery

E	Level 1 failures (commitments and actuals), 166 Level 2 failures (quality of
EAC	forecast), 169
Prudence Principle, 29, 120	Level 3 failures (lack of decision-
vs 'Achievable'. See Forecasting	making support), 175
Earned Value techniques, 49, 89, 199	Surprises, 161
Escalation, 105	I
F	Immediacy Principle, 28, 121, 130
Financial Results Instability. See Percentage of	M
Completion (POC)	Main Contract
Multi-Currency accounting, 155 Multi-entity accounting, 155	Revenue structure, 43
Forecasting, 77 Allowances, 109	P
Allowances (Engineering), 98	Percentage of Completion (POC),
Allowances (Fabrication), 104	131
Allowances (Quantities & Bulk),	Loss Making projects, 144
87	Threshold, 142
Bottom-Up, 78	Periodic Project Report
Conditions for Forecast quality,	Contents, 115
77	EAC vs Sensitivity table, 116
Construction, 105, 107	Project Cost Model, 24, 27
Construction spread rate, 67,	Initialisation, 37
105	Time Phasing. See Time-Phasing
Contingency, 109	
EAC vs 'Achievable', 120	R
Expensive consumables (fuel), 70	Deter
Fabrication, 103	Rates
Principles, 89	Over/Under-Recovery, 18
Project Management &	Standard Rates vs Actual Costs, 17
Engineering, 75, 95	Reconciliation (cost), 30, 67, 74, 80
Revenue, 112, 122	Rental equipment, 71, 72
Supply Chain, 99, 100	Reporting
Forecasting Approaches	Requirements for suppliers, 63,
Productivity/ Earned Value, 89	65
Quantities (Bulk & Equipment),	Timing, 51
84	Revenue
Two different approaches, 83	Forecasting. See Forecasting
Forensic Cost Control	5 0
Cost Control Failure Modes, 165	

S

Schedule

Consistency with Cost Control, 28 Interface with Cost Control. See Earned Value techniques Supply Chain

Bid Comparisons, 47 Interface with Cost Control, 46

Suppliers vs Contractors, 60

T

Time-Phasing
Allowances, 134
Construction, 134
Contingency, 134
Cost Model update, 131
Importance, 149

Initial Budget, 46
Project Management and
Engineering, 132
Revenue, 138
Strategy, 135
Supply-Chain, 133

V

Value of Work Done (VoWD), 131, 136 Variances Consequential variances, 56 Tracking, 92 Variation Orders Revenue recognition, 112

W

Worksite Cost Control, 66, 70



Project Value Delivery,

a Leading International Consultancy for Large, Complex Projects

This cutting-edge project management book is sponsored by Project Value

Delivery, a leading international consultancy that "Empowers Organisations to be Reliably Successful in Executing Large, Complex Projects".

Part of our mission is to identify and spread the world-class practices that define consistent success for project leadership. Ultimately, we want to be able to deliver a framework that makes Large, Complex Projects a reliable endeavor.

Our Book Series are a crucial part of this framework, spreading indispensable good practices and skillsets for leaders in projects.

Our approach to project success

At Project Value Delivery we believe that project success is based on three main pillars which require specific sets of skills and methodologies specific to Large, Complex projects. All three need to be strong to allow for ultimate success:

- Project Soft PowerTM (the human side)
- Systems
- Processes

We focus on embedding these skills and methodologies in organisations through consulting, coaching and training appointments. We develop what organisations need and then help them implement it sustainably, transferring the knowledge and skills.

We recognise that to be effective, our interventions will involve access to confidential business information and make it a point to treat all information provided to us with the utmost confidentiality and integrity.

Our Products

Our products are directly related to our three pillars. We have developed proprietary methods and tools to deliver the results that are needed for Large, Complex projects. In a number of areas, they are significantly different from those conventional project management tools used for simpler projects.



We focus on consulting, coaching and training interventions where we come in for a short to medium duration, analyse the situation, develop customised tools if needed, and transfer skills and methods to our clients so that they can implement them in a sustainable manner.

Contact

Contact us to learn more and get great resources for free!

Contact @ **ProjectValueDelivery.com**, and visit our website **www.ProjectValueDelivery.com** where you can register to receive regular updates on our White Papers.



We Empower Organizations to be Reliably Successful in Executing Large, Complex projects.

www.ProjectValueDelivery.com