

Contents

Acknowledgments

vii

Introduction

ix

Part 1 Data Gathering

1

- 1.0 Data Gathering Techniques / 2
- 1.1 Benchmarking / 3
- 1.2 Brainstorming / 6
- 1.3 Check Sheets / 8
- 1.4 Checklists / 10
- 1.5 Focus Groups / 12
- 1.6 Statistical Sampling / 14

Part 2 Data Analysis

17

- 2.0 Data Analysis Techniques / 18
- 2.1 Alternatives Analysis / 19
- 2.2 Cost Benefit Analysis / 24
- 2.3 Cost of Quality / 27
- 2.4 Decision Tree / 31
- 2.5 Earned Value Analysis / 36
- 2.6 Influence Diagrams / 41
- 2.7 Make-or-Buy Analysis / 44
- 2.8 Performance Index / 46
- 2.9 Regression Analysis / 48
- 2.10 Reserve Analysis / 51
- 2.11 Root Cause Analysis / 55
- 2.12 Sensitivity Analysis / 58
- 2.13 Stakeholder Analysis / 63
- 2.14 SWOT Analysis / 67
- 2.15 Technical Performance Analysis / 70

- 2.16 Variance Analysis / 72

- 2.17 What-If Analysis / 74

Part 3 Data Representation

77

- 3.0 Data Representation Techniques / 78
- 3.1 Cause-and-Effect Diagram / 79
- 3.2 Control Charts / 82
- 3.3 Flowcharts / 87
- 3.4 Histograms / 90
- 3.5 Logical Data Model / 93
- 3.6 Mind Mapping / 96
- 3.7 Probability and Impact Matrix / 98
- 3.8 Resource Breakdown Structure / 101
- 3.9 Responsibility Assignment Matrix / 103
- 3.10 Scatter Diagrams / 106
- 3.11 Stakeholder Mapping / 108

Part 4 Estimating

111

- 4.0 Estimating Techniques / 112
- 4.1 Analogous Estimating / 113
- 4.2 Bottom-Up Estimating / 116
- 4.3 Estimate at Completion / 119
- 4.4 Estimate to Complete / 123
- 4.5 Parametric Estimating / 126
- 4.6 To-Complete Performance Index / 128
- 4.7 Three-Point Estimating / 131
- 4.8 Variance at Completion / 134

Part 5 Interpersonal and Team Skills 137

- 5.0 Interpersonal and Team Skills / 138
- 5.1 Conflict Management / 139
- 5.2 Decision Making / 145
- 5.3 Nominal Group Technique / 151
- 5.4 Problem Solving / 153

Part 6 Other Techniques 157

- 6.0 Other Techniques / 158
- 6.1 Context Diagram / 159
- 6.2 Critical Path Method / 161
- 6.3 Funding Limit Reconciliation / 170

- 6.4 Inspection / 172
- 6.5 Leads and Lags / 174
- 6.6 Precedence Diagramming Method / 177
- 6.7 Prompt Lists / 181
- 6.8 Prototypes / 184
- 6.9 Resource Optimization / 186
- 6.10 Rolling-Wave Planning / 189
- 6.11 Schedule Compression / 192

Appendix: Case Study Scenarios 197

Index 203