

# PROJECT MANAGEMENT METRICS, KPIs, AND DASHBOARDS

## A Guide to Measuring and Monitoring Project Performance

*Third Edition*

**Harold Kerzner, Ph.D.**

Sr. Executive Director for Project Management  
The International Institute for Learning

**WILEY**



**INTERNATIONAL**  
Institute for Learning, Inc.

# CONTENTS

## PREFACE

## 1 THE CHANGING LANDSCAPE OF PROJECT MANAGEMENT

### CHAPTER OVERVIEW 1

- 1.0 INTRODUCTION 1**
- 1.1 EXECUTIVE VIEW OF PROJECT MANAGEMENT 2**
- 1.2 COMPLEX PROJECTS 5**
  - Comparing Traditional and Nontraditional Projects 5
  - Defining Complexity 8
  - Trade-offs 10
  - Skill Set 10
  - Governance 11
  - Decision Making 11
  - Fluid Methodologies 12
- 1.3 GLOBAL PROJECT MANAGEMENT 12**
- 1.4 PROJECT MANAGEMENT METHODOLOGIES AND FRAMEWORKS 14**
  - Light Methodologies 16
  - Heavy Methodologies 17
  - Frameworks 17
- 1.5 THE NEED FOR EFFECTIVE GOVERNANCE 20**
- 1.6 ENGAGEMENT PROJECT MANAGEMENT 20**
- 1.7 CUSTOMER RELATIONS MANAGEMENT 23**
- 1.8 OTHER DEVELOPMENTS IN PROJECT MANAGEMENT 23**
- 1.9 A NEW LOOK AT DEFINING PROJECT SUCCESS 25**
  - Success Is Measured by the Triple Constraints 25
  - Customer Satisfaction Must Be Considered as Well 26
  - Other (or Secondary) Factors Must Be Considered as Well 26
  - Success Must Include a Business Component 26
  - Prioritization of Success Constraints May Be Necessary 27
  - The Definition of Success Must Include a “Value” Component 28

ix

Multiple Components for Success 29  
The Future 30

- 1.10 THE GROWTH OF PAPERLESS PROJECT MANAGEMENT 30**
- 1.11 PROJECT MANAGEMENT MATURITY AND METRICS 32**
- 1.12 PROJECT MANAGEMENT BENCHMARKING AND METRICS 36**
  - Best Practice versus Proven Practice 37
  - Benchmarking Methodologies 38
- 1.13 CONCLUSIONS 42**

## 2 THE DRIVING FORCES FOR BETTER METRICS 43

### CHAPTER OVERVIEW 43

- 2.0 INTRODUCTION 43**
- 2.1 STAKEHOLDER RELATIONS MANAGEMENT 44**
- 2.2 PROJECT AUDITS AND THE PMO 56**
- 2.3 INTRODUCTION TO SCOPE CREEP 57**
  - Defining Scope Creep 57
  - Scope Creep Dependencies 60
  - Causes of Scope Creep 60
  - Need for Business Knowledge 62
  - Business Side of Scope Creep 62
  - Ways to Minimize Scope Creep 63
- 2.4 PROJECT HEALTH CHECKS 64**
  - Understanding Project Health Checks 65
  - Who Performs the Health Check? 67
  - Life Cycle Phases 67
- 2.5 MANAGING DISTRESSED PROJECTS 69**
  - Root Causes of Failure 70
  - Definition of Failure 71
  - Early Warning Signs of Trouble 72
  - Selecting the Recovery Project Manager 73
  - Recovery Life Cycle Phases 74

## 3 METRICS

### CHAPTER OVERVIEW 83

- 3.0 INTRODUCTION 83**
- 3.1 PROJECT MANAGEMENT METRICS: THE EARLY YEARS 84**
- 3.2 PROJECT MANAGEMENT METRICS: CURRENT VIEW 87**
  - Metrics and Small Companies 88
- 3.3 METRICS MANAGEMENT MYTHS 88**
- 3.4 SELLING EXECUTIVES ON A METRICS MANAGEMENT PROGRAM 89**
- 3.5 UNDERSTANDING METRICS 91**
- 3.6 CAUSES FOR LACK OF SUPPORT FOR METRICS MANAGEMENT 95**
- 3.7 USING METRICS IN EMPLOYEE PERFORMANCE REVIEWS 96**
- 3.8 CHARACTERISTICS OF A METRIC 97**
- 3.9 METRIC CATEGORIES AND TYPES 99**
- 3.10 SELECTING THE METRICS 101**
- 3.11 SELECTING A METRIC/KPI OWNER 105**
- 3.12 METRICS AND INFORMATION SYSTEMS 106**
- 3.13 CRITICAL SUCCESS FACTORS 106**
- 3.14 METRICS AND THE PMO 109**
- 3.15 METRICS AND PROJECT OVERSIGHT/GOVERNANCE 112**
- 3.16 METRICS TRAPS 113**
- 3.17 PROMOTING THE METRICS 114**
- 3.18 CHURCHILL DOWNS INCORPORATED'S PROJECT PERFORMANCE MEASUREMENT APPROACHES 114**
  - Toll Gates (Project Management–Related Progress and Performance Reporting) 116

## 4 KEY PERFORMANCE INDICATORS

### CHAPTER OVERVIEW 121

- 4.0 INTRODUCTION 121**
- 4.1 THE NEED FOR KPIS 122**
- 4.2 USING THE KPIS 126**
- 4.3 THE ANATOMY OF A KPI 128**
- 4.4 KPI CHARACTERISTICS 129**
  - Accountability 130
  - Empowered 131
  - Timely 131
  - Trigger Points 131
  - Easy to Understand 132
  - Accurate 132
  - Relevant 133

## 83

Seven Strategies for Selecting Relevant Key Performance Indicators 134

Putting the R in KPI 135

Take First Prize 137

- 4.5 CATEGORIES OF KPIS 137**
- 4.6 KPI SELECTION 138**
- 4.7 KPI MEASUREMENT 144**
- 4.8 KPI INTERDEPENDENCIES 146**
- 4.9 KPIS AND TRAINING 148**
- 4.10 KPI TARGETS 149**
- 4.11 UNDERSTANDING STRETCH TARGETS 152**
- 4.12 KPI FAILURES 154**
- 4.13 KPIS AND INTELLECTUAL CAPITAL 155**
- 4.14 KPI BAD HABITS 157**
  - KPI Bad Habits Causing Your Performance Measurement Struggles 158
- 4.15 BRIGHTPOINT CONSULTING, INC.—DASHBOARD DESIGN: KEY PERFORMANCE INDICATORS AND METRICS 163**
  - Introduction 163
  - Metrics and Key Performance Indicators 164
  - Scorecards, Dashboards, and Reports 165
  - Gathering KPI and Metric Requirements for a Dashboard 166
  - Interviewing Business Users 166
  - Putting It All Together—The KPI Wheel 167
  - Start Anywhere, but Go Everywhere 167
  - Wheels Generate Other Wheels 170
  - A Word about Gathering Requirements and Business Users 170
  - Wrapping It All Up 171

## 5 VALUE-BASED PROJECT MANAGEMENT METRICS

## 173

### CHAPTER OVERVIEW 173

- 5.0 INTRODUCTION 173**
- 5.1 VALUE OVER THE YEARS 175**
- 5.2 VALUES AND LEADERSHIP 176**
- 5.3 COMBINING SUCCESS AND VALUE 179**
- 5.4 RECOGNIZING THE NEED FOR VALUE METRICS 183**
- 5.5 THE NEED FOR EFFECTIVE MEASUREMENT TECHNIQUES 186**
- 5.6 CUSTOMER/STAKEHOLDER IMPACT ON VALUE METRICS 191**
- 5.7 CUSTOMER VALUE MANAGEMENT 192**
- 5.8 THE RELATIONSHIP BETWEEN PROJECT MANAGEMENT AND VALUE 197**
- 5.9 BACKGROUND OF METRICS 202**
  - Redefining Success 203
  - Growth in the Use of Metrics 204

## 121

- 5.10** SELECTING THE RIGHT METRICS 208
- 5.11** THE FAILURE OF TRADITIONAL METRICS AND KPIs 212
- 5.12** THE NEED FOR VALUE METRICS 212
- 5.13** CREATING A VALUE METRIC 213
- 5.14** PRESENTING THE VALUE METRIC IN A DASHBOARD 221
- 5.15** INDUSTRY EXAMPLES OF VALUE METRICS 221
- 5.16** USE OF CRISIS DASHBOARDS FOR OUT-OF-RANGE VALUE ATTRIBUTES 227
- 5.17** ESTABLISHING A METRICS MANAGEMENT PROGRAM 228
- 5.18** USING VALUE METRICS FOR FORECASTING 230
- 5.19** METRICS AND JOB DESCRIPTIONS 232
- 5.20** GRAPHICAL REPRESENTATION OF METRICS 232
- 5.21** CREATING A PROJECT VALUE BASELINE 245
  - The Performance Measurement Baseline 246
  - Project Value Management 246
  - The Value Management Baseline 247
  - Selecting the Value Baseline Attributes 250

## 6 DASHBOARDS 253

### CHAPTER OVERVIEW 253

- 6.0** INTRODUCTION 253
- 6.1** HOW WE PROCESS DASHBOARD INFORMATION 258
- 6.2** DASHBOARD CORE ATTRIBUTES 258
- 6.3** THE MEANING OF INFORMATION 259
- 6.4** TRAFFIC LIGHT DASHBOARD REPORTING 261
- 6.5** DASHBOARDS AND SCORECARDS 263
  - Dashboards 264
  - Scorecards 264
  - Summary 264
- 6.6** CREATING A DASHBOARD IS A LOT LIKE ONLINE DATING 266
  - Finding Out the Needs of the Stakeholders 266
  - Making a Connection 267
  - Choosing Your Key Performance Indicators 267
  - Selecting Your Visuals 268
  - Building on the Momentum 268
  - Maintenance 268
- 6.7** BENEFITS OF DASHBOARDS 269
- 6.8** IS YOUR BI TOOL FLEXIBLE ENOUGH? 269
  - A Flexible BI Tool—What Does It Mean and Why Does It Matter? 269
  - Why Is Flexibility So Important? 270
  - Stay Up to Speed with Your Changing Business Needs 271
  - Be Independent (with Fewer Tools and Users Involved to Get Your Job Done) 272
  - Adapt to Each and Every User 272
- Be Ready for the Unknown 272
- 6.9** RULES FOR DASHBOARDS 273
- 6.10** THE SEVEN DEADLY SINS OF DASHBOARD DESIGN AND WHY THEY SHOULD BE AVOIDED 273
  - Deadly Sin #1: Off the Page, Out of Mind 274
  - Deadly Sin #2: And This Means . . . What? 274
  - Deadly Sin #3: Right Data, Wrong Chart 274
  - Deadly Sin #4: Not Making the Right Arrangements 274
  - Deadly Sin #5: A Lack of Emphasis 275
  - Deadly Sin #6: Debilitating Detail 275
  - Deadly Sin #7: Not Crunching the Numbers 275
- 6.11** BRIGHTPOINT CONSULTING, INC.: DESIGNING EXECUTIVE DASHBOARDS 276
  - Introduction 276
  - Dashboard Design Goals 276
  - Defining Key Performance Indicators 277
  - Defining Supporting Analytics 277
  - Choosing the Correct KPI Visualization Components 278
  - Supporting Analytics 280
  - Validating Your Design 283
- 6.12** ALL THAT GLITTERS IS NOT GOLD 285
- 6.13** USING EMOTICONS 309
- 6.14** MISLEADING INDICATORS 311
- 6.15** AGILE AND SCRUM METRICS 312
- 6.16** DATA WAREHOUSES 314
- 6.17** DASHBOARD DESIGN TIPS 315
  - Colors 315
  - Fonts and font size 316
  - Use Screen Real Estate 316
  - Component Placement 317
- 6.18** TEAMQUEST CORPORATION 317
  - White Paper #1: Metric Dashboard Design 318
  - White Paper #2: Proactive Metrics Management 329
- 6.19** LOGI ANALYTICS, INC.: DASHBOARD BEST PRACTICES 338
  - Executive Summary 338
  - Introduction—What’s New about Dashboards? 340
  - How Modern Is the Modern Dashboard? 340
  - The Dashboard versus the Spreadsheet 342
  - Designing the Dashboard 342
  - The Business-Driven Dashboard 343
  - The Implications for the IT Provider 345
  - Implementing the Dashboard 345
  - Organizational Challenges 346
  - Common Pitfalls 347
  - Justifying the Dashboard 348
  - Return on Investment 348
  - Ensuring Service-Level Agreements 349
  - Conclusion 349

- 6.20 A SIMPLE TEMPLATE** 350
- 6.21 SUMMARY OF DASHBOARD DESIGN REQUIREMENTS** 350
  - The Importance of Design to Information Dashboards 350
  - The Rules for Color Usage on Your Dashboard 353
  - The Rules for Graphic Design of Your Dashboard 355
  - The Rules for Placing the Dashboard in Front of Your Users—The Key to User Adoption 356
  - The Rules for Accuracy of Information on Your Dashboard 357
- 6.22 DASHBOARD LIMITATIONS** 357
- 6.23 THE DASHBOARD PILOT RUN** 360
- 6.24 EVALUATING DASHBOARD VENDORS** 361
- 6.25 NEW DASHBOARD APPLICATIONS** 363

## 7 DASHBOARD APPLICATIONS 365

- CHAPTER OVERVIEW 365
- 7.0 INTRODUCTION** 365
- 7.1 DASHBOARDS IN ACTION: DUNDAS DATA VISUALIZATION** 366
- 7.2 DASHBOARDS IN ACTION: PIEMATRIX, INC.** 366
- 7.3 PIEMATRIX OVERVIEW** 378
  - PieMatrix Executive Dashboard 378
  - Executive Dashboard and To-Do List—Where Does All This Data Come From? 389

- Project—Governing and Executing Complex Projects in a Visual and Friendly Way 392
- Project—Planning the Project 396
- Project—Breaking Down Silos 399
- Authoring—Where the Best Practice Content Comes From 405
- From Authoring Back to the Executive Dashboard 405
- 7.4 DASHBOARDS IN ACTION: INTERNATIONAL INSTITUTE FOR LEARNING** 408

## 8 THE PORTFOLIO MANAGEMENT PMO AND METRICS 413

- CHAPTER OVERVIEW 413
- 8.0 INTRODUCTION** 413
- 8.1 CRITICAL QUESTIONS** 414
- 8.2 VALUE CATEGORIES** 414
- 8.3 PORTFOLIO METRICS** 416
- 8.4 MEASUREMENT TECHNIQUES AND METRICS** 419
- 8.5 CRISIS DASHBOARDS** 419
  - Defining a Crisis 420
- INDEX 425

## PREFACE

The ultimate purpose of metrics and dashboards is not to provide more information but to provide the right information to the right person at the right time, using the correct media and in a cost-effective manner. This is certainly a challenge. As computer technology has grown, so has the ease with which information can be generated and presented to management and stakeholders. Today, everyone seems concerned about information overload. Unfortunately, the real issue is non-information overload. In other words, there are too many useless reports that cannot easily be read and that provide readers with too much information, much of which may have no relevance. This information simply distracts us from the real issues and accurate performance reporting. Furthermore, the growth in metric measurement techniques has encouraged us to measure everything regardless of its value as part of performance reporting.

The purpose of status reporting is to show us what actions the viewer must consider. Insufficient or ineffective metrics prevent us from understanding what decisions really need to be made. In traditional project review meetings, emphasis is placed on a detailed schedule analysis and a lengthy review of the cost baseline versus actual expenditures. The resulting discussion and explanation of the variances are most frequently pure guesswork. Managers who are upset about the questioning by senior management then make adjustments that do not fix the problems but limit the time they will be grilled by senior management at the next review meeting. They then end up taking actions that may be counterproductive to the timely completion of the project, and real issues are hidden.

You cannot correct or improve something that cannot be effectively identified and measured. Without effective metrics, managers will not respond to situations correctly and will end up reinforcing undesirable actions by the project team. Keeping the project team headed in the right direction cannot be done easily without effective identification and measurement of metrics.

When all is said and done, we wonder why we have studies like the Chaos Report, which has shown us over the past 20 years that only about 30 percent of the IT projects are completed successfully. We then identify

hundreds of causes as to why projects fail but neglect what is now being recognized as perhaps the single most important cause: a failure in metrics management.

Metrics management should be addressed in all of the areas of knowledge in the *PMBOK® Guide*,\* especially communications management. We are now struggling to find better ways of communicating on projects. This will become increasingly important as companies compete in a global marketplace. Our focus today is on the unique needs of the receiver of the information. The need to make faster and better decisions mandates better information. Human beings can absorb information in a variety of ways. We must address all of these ways in the selection of the metrics and the design of the dashboards that convey this information.

The three most important words in a stakeholder's vocabulary are "making informed decisions." This is usually the intent of effective stakeholder relations management. Unfortunately, this cannot be accomplished without an effective information system based on meaningful and informative metrics and key performance indicators (KPIs).

All too often, we purchase project management software and reluctantly rely on the report generators, charts, and graphs to provide the necessary information, even when we realize that this information either is not sufficient or has limited value. Even those companies that create their own project management methodologies neglect to consider the metrics and KPIs that are needed for effective stakeholder relations management. Informed decisions require effective information. We all seem to understand this, yet it has only been in recent years that we have tried to do something about it.

For decades we believed that the only information that needed to be passed on to the client and the stakeholders was information related to time and cost. Today we realize that the true project status cannot be determined from time and cost alone. Each project may require its own unique metrics and KPIs. The future of project management may very well be metric-driven project management.

Information design has finally come of age. Effective communications is the essence of information design. Today we have many small companies that are specialists in business information design. Larger companies may maintain their own specialist team and call these people graphic designers, information architects, or interaction designers. These people maintain expertise in the visual display of both quantitative and qualitative information necessary for informed decision making.

Traditional communications and information flow has always been based on tables, charts, and indexes that were, it is hoped, organized properly by the designer. Today information or data graphics combines points, lines, charts, symbols, images, words, numbers, shades, and a

---

\*PMBOK is a registered mark of the Project Management Institute, Inc.

symphony of colors necessary to convey the right message easily. What we know with certainty is that dashboards and metrics are never an end in themselves. They go through continuous improvement and are constantly updated. In a project management environment, each receiver of information can have different requirements and may request different information during the life cycle of the project.

With this in mind, the book is structured as follows:

- Chapters 1 and 2 identify how project management has changed over the last few years and how more pressure is being placed on organizations for effective metrics management.
- Chapter 3 provides an understanding of what metrics are and how they can be used.
- Chapter 4 discusses key performance indications and explains the difference between metrics and KPIs.
- Chapter 5 focuses on the value-driven metrics and value-driven KPIs. Stakeholders are asking for more metrics related to the project's ultimate value. The identification and measurement of value-driven metrics can be difficult.
- Chapter 6 describes how dashboards can be used to present the metrics and KPIs to stakeholders. Examples of dashboards are included together with some rules for dashboard design.
- Chapter 7 identifies dashboards that are being used by companies.
- Chapter 8 provides various business-related metrics that are currently used by portfolio management project management offices to ensure that the business portfolio is delivering the business value expected.

HAROLD KERZNER, Ph.D.  
Sr. Executive for Project Management  
The International Institute for Learning