PRODUCTIVITY INCREASING THROUGH PROJECT MANAGEMENT PERSPECTIVE

Mojak Publication

AMIRHOSSEIN AKHAVAN MOFRAD
NARGES BAHRAMI

PRODUCTIVITY INCREASING THROUGH PROJECT MANAGEMENT PERSPECTIVE

Amirhossein Akhavan Mofrad

Narges Bahrami

Creating Innovative products

Mojak Publication

Entry	:Productivity Increasing Through Project Management Perspective
Title and author name	:Amirhossein Akhavan Mofrad, Narges Bahrami.
Publication Specifications	:Tehran: MOJAK, 1395 = 2016
Outward Specifications	:P. 240, Illustrated.
ISBN	: 978-600-8634-38-6, Rial 300000
Status cataloged	:FIPA
Memo	:English
Title Transcribe	:Productivity
Subject	:Productivity -- Management
Added Entry	:Bahrami, Narges, 1360.
Congress Classification	:1395 4 P 3 A / 57 HD
Dewey decimal classification	:313/118
National Bibliography Number	:4498906

Mojak Publication

Channel: telegram.me/mojak1 Telegram: 09017672502

Phone distribution center: 02166127593 - 02632232091

Email : mojakpublication@gmail.com

Web : www.mojak.ir

Title: Productivity Increasing Through Project Management Perspective

Compilation: Amirhossein Akhavan Mofrad, Narges Bahrami

Cover Designer: seyede Zahra roshanaei

Outward Specifications: P. 240, Illustrated

First Edition: winter 1395

Circulation: 1000, Rial 300000

ISBN: 978-600-8634-38-6

Publishing rights to the publisher reserved.

Contents

PREFACE **1**

INTRODUCTION **5**

ACKNOWLEDGMENTS **7**

THE AGILE SOFTWARE DEVELOPMENT SERIES **9**

CHAPTER 1: THE AGILE REVOLUTION **11**
1-1 Innovative Product Development 11
1-2 Reliable Innovation 15
1-2-1 Continuous innovation 16
1-2-2 Product Adaptability 16
1-2-3 Reduced Delivery Schedules 16
1-2-4 People and Process Adaptability 17
1-2-5 Reliable Results 17
1-3 Core Agile Values 17
1-3-1 Responding to Change 19
1-3-2 Working Products 20
1-3-3 Customer Collaboration 22
1-3-4 Individuals and Interactions 22
1-4 Agile Project Management 23
1-4-1 Agility Defined 25
1-4-2 The APM Framework 27
1-5 Thriving in a Chaordic World 28
1-6 Our Journey 30

CHAPTER 2: GUIDING PRINCIPLES: CUSTOMERS AND PRODUCTS **33**
2-1 THE GUIDING PRINCIPLES OF AGILE PROJECT MANAGEMENT 33
2-2 DELIVER CUSTOMER VALUE 35
2-2-1 Innovation and Adaptability 36
2-2-2 Planning and Control to Execution 37

2-2-3 Delivery versus Compliance 38
2-3 EMPLOY ITERATIVE, FEATURE-BASED DELIVERY 40
2-3-1 Creating a Better Product 41
2-3-2 Producing Earlier Benefits 43
2-3-3 Progressive Risk Reduction 44
2-4 CHAMPION TECHNICAL EXCELLENCE 45
2-5 CUSTOMERS AND PRODUCTS 48

CHAPTER 3: GUIDING PRINCIPLES: LEADERSHIP COLLABORATION MANAGEMENT 49
3-1 The Business of APM 49
3-1-1 Reliable, Not Repeatable 50
3-1-2 Progress Reporting 52
3-2 Leadership-Collaboration Management 54
3-3 Encourage Exploration 57
3-3-1 Shared Space 59
3-3-2 Encouragement Isn't Enough 60
3-4 Build Adaptive (Self-Organizing Self-Disciplined) Teams 62
3-4-1 Getting the Right People 63
3-4-2 Articulating the Product Vision 63
3-4-3 Encouraging Interaction 64
3-4-4 Participatory Decision Making 65
3-4-5 Insisting on Accountability 67
3-4-6 Steering, Not Controlling 67
3-4-7 Self-Discipline 68
3-5 Simplify 69
3-5-1 Generative Rules 70
3-5-2 Barely Sufficient Methodology 71
3-6 Principles to Practices 72

CHAPTER 4: AN AGILE PROJECT MANAGEMENT MODE 73
4-1 An Agile Process Framework 73
4-2 Phase: Envision 75
4-3 Phase: Speculate 75
4-4 Phase: Explore 76
4-5 Phase: Adapt 76
4-6 Phase: Close 77
4-7 Judgment Required 77
4-8 Project Size 78
4-9 Agile Practices 78

CHAPTER 5: THE ENVISION PHASE 81
5-1 Phase: Envision 81
5-2 Practice: Product Vision Box and Elevator Test Statement 85
5-2-1 Objective 85
5-2-2 Discussion 85
5-3 Practice: Product Architecture 88
5-3-1 Objective 88
5-3-2 Discussion 89
5-3-3 Guiding Principles 92
5-4 Practice: Project Data Sheet 92
5-4-1 Objective 92
5-4-2 Discussion 93
5-4-3 Tradeoff Matrix 94
5-4-4 Exploration Factor 96
5-5 Practice: Get the Right People 98
5-5-1 Objective 98
5-5-2 Discussion 98
5-6 Practice: Participant Identification 101
5-6-1 Objective 101
5-6-2 Discussion 101
5-7 Practice: Customer Team-Developer Team Interface 103
5-7-1 Objective 103
5-7-2 Discussion 104
5-8 Practice: Process and Practice Tailoring 107
5-8-1 Objective 107
5-8-2 Discussion 107
5-8-3 Self-Organization Strategy 108
5-8-4 Process Framework Tailoring 110
5-8-5 Practice Selection and Tailoring 111
5-8-6 Early Planning 113
5-9 Envision Summary 114

CHAPTER 6: THE SPECULATE PHASE 115
6-1 Phase: Speculate 115
6-2 Practice: Product Feature List 119
6-2-1 Objective 119
6-2-2 Discussion 119
6-3 Practice: Feature Cards 121
6-3-1 Objective 121

6-3-2 Discussion 121
6-4 Practice: Performance Requirements Cards 124
6-4-1 Objective 124
6-4-2 Discussion 124
6-5 Practice: Release, Milestone, and Iteration Plan 125
6-5-1 Objective 125
6-5-2 Discussion 125
6-5-3 Iteration 0 129
6-5-4 Iterations 1—N 130
6-5-5 Next Iteration Plan 136
6-5-6 First Feasible Deployment 137
6-5-7 Estimating 138
6-5-8 Scope Evolution 140
6-5-9 Risk Analysis and Mitigation 142
6-6 Speculate Summary 146

CHAPTER 7: THE EXPLORE PHASE 149
7-1 Phase: Explore 149
7-2 Practice: Workload Management 152
7-2-1 Objective 152
7-2-2 Discussion 152
7-3 Practice: Low-Cost Change 153
7-3-1 Objective 153
7-3-2 Discussion 153
7-3-3 Technical Debt 154
7-3-4 Simple Design 156
7-3-5 Frequent Integration 158
7-3-6 Ruthless Testing 161
7-3-7 Opportunistic Refactoring 161
7-4 Practice: Coaching and Team Development 164
7-4-1 Objective 164
7-4-2 Discussion 164
7-4-3 Focusing the Team on Delivering Results 165
7-4-4 Molding a Group of Individuals into a Team 166
7-4-5 Developing Each Individual's Capabilities 170
7-4-6 Providing the Team with Required Resources and Removing Roadblocks 171
7-4-7 Coaching the Customers 171
7-4-8 Orchestrating Team Rhythm 172
7-5 Practice: Daily Team Integration Meetings 173

7-5-1 Objective 173
7-5-2 Discussion 173
7-6 Practice: Participatory Decision Making 176
7-6-1 Objective 176
7-6-2 Discussion 176
7-6-3 Decision Framing 179
7-6-4 Decision Making 180
7-6-5 Decision Retrospection 184
7-6-6 Leadership and Decision Making 185
7-6-7 Set- and Delay-Based Decision Making 186
7-7 Practice: Daily Interaction with the Customer Team 187
7-7-1 Objective 187
7-7-2 Discussion 188
7-7-3 Stakeholder Coordination 189
7-8 Explore Summary 189

CHAPTER 8: THE ADAPT AND CLOSE PHASES 191
8-1 Phase: Adapt 191
8-2 Practice: Product, Project, and Team Review and Adaptive Action 193
8-2-1 Objective 193
8-2-2 Discussion 193
8-2-3 Customer Focus Groups 194
8-2-4 Technical Reviews 196
8-2-5 Team Performance Evaluations 197
8-2-6 Project Status Reports 199
8-2-7 Adaptive Action 206
8-3 Phase: Close 207
8-4 Adapt and Close Summary 208

CHAPTER 9: BUILDING, LARGE ADAPTIVE TEAMS 209
9-1 The Scaling Challenge 209
9-2 A Scaled Adaptive Framework 210
9-3 A Hub Organizational Structure 211
9-4 Self-Organization Extensions 213
9-5 Team Self- Discipline 217
9-6 The Commitment-Accountability Protocol 218
9-7 Is It Working? 221
9-8 Structure and Tools 222
9-9 Summary 223

CHAPTER 10: RELIABLE INNOVATION 225
10-1 The Agile Vision 225
10-1-1 The Changing Face of New Product Development 225
10-1-2 Agile People and Processes Deliver Agile Products 227
10-2 Implementing the Vision 228
10-3 Reliable Innovation 230
10-4 The Value-Adding Project Manager 231
10-5 Conviction 233

BIBLIOGRAPHY 235

Preface

When the Manifesto for Agile Software Development (www.agilealliance.org) was written in spring 2001, it launched a movement—a movement that has raced through the software development community; generated controversy and debate; connected with related movements in manufacturing, construction; and aerospace; and been extended into project management.

The essence of this movement, whether in new product development, new service offerings, software applications, or project management, rests on two foundational goals: delivering innovative products to customers (particularly in highly uncertain situations) and creating working environments in which people look forward to coming to work each day.

Innovation continues to drive economic success for countries, industries, and individual companies. While the rates, of innovation in information technology in the last decade may have declined from prodigious to merely lofty, innovation in areas such as biotechnology and nanotechnology is picking up any slack.

New technologies such as combinatorial chemistry and sophisticated computer simulation are fundamentally altering the innovation process itself. When these technologies are 'applied to the innovation process, the cost of iteration can be driven down dramatically, enabling exploratory and processes to be both more effective and less costly than serial, specification-based processes. When it takes a pharmaceutical company months to develop a chemical compound and test it, errors are costly and careful laboratory design becomes the norm. When combinatorial chemistry can create hundreds, if not thousands, of compounds in a day and sophisticated instruments can test them in a few more days, careful specification and design can be less effective and more costly than careful experimentation. This same dynamic is at work in the automotive, integrated circuit, software, and pharmaceutical industries. It will soon be at work in your industry.

But taking advantage of these new innovation technologies has proved tricky. When exploration processes replace prescriptive processes, people have to change. For the chemist who now manages the experimental compounding process rather than designing compounds himself, and the manager who has to deal with hundreds of experiments rather than a detailed, prescriptive plan, new project management and organizational processes are required. Even when these technologies and processes are lower cost and higher performance than their predecessors, the transformation often proves difficult.

Experimentation matters, as the title of Harvard Business School professor Stefan Thomke's recent book exclaims (Thomke 2003), but many project managers are still mired in a prescriptive, conformance-to-plan mentality that eschews that very experimentation.

Project management, at least that sector of project management dealing with new product development, needs to be transformed, but to what? It needs to be transformed to move faster, be more flexible, and be aggressively customer responsive. Agile Project Management (APM) and agile product development answer, this transformational need. APM brings together a set of principles and practices that enables project managers to catch up with the realities of modern product development.

The target audience for this book is project managers, those hearty individuals who shepherd teams through the exciting but often messy process of turning visions into products—be they cell phones or medical electronic instruments. APM rejects the view of project managers as functionaries who merely comply with the bureaucratic demands of schedules and budgets and replaces it with one in which they are intimately involved in helping teams deliver products. Agile project managers focus on products and people, not paperwork.

There are four broad topics, covered in Agile Project Management: opportunity, principles, framework, and practices. The opportunity lies in creating innovative products and services—things that are new, different, and creative. These are products that can't be defined completely in the beginning but evolve over time through experimentation, exploration, and adaptation.

The principles of APM revolve around creating both adaptive products that are easy and less expensive to change and adaptive project teams that can

respond rapidly to changes in their project's ecosystem. The framework is a set of high-level processes, or phases—Envision, Speculate, Explore, Adapt, and Close—that support exploration and experimentation and deliver results reliably, even in the face of constant change, uncertainty, and ambiguity.

Finally, the practices—from developing a product vision box to getting the right people—provide actionable ways in which project teams can deliver results. At its core, APM focuses on customers, products, and people—delivering value to customers, building adaptable products, and engaging talented people in collaborative work.

AmirHossein Akhavan Mofrad
Narges Bahrami
January 2017
Nanjing,Jiangsu,P.R.CHINA

Introduction

Agile Project management contains. Four focal points: the agile revolution and its impact on new product development; the values and principles that drive agile project management; a process framework; and the specific Practices that embody the principles and deliver results.

Chapter 1, The Agile Revolution introduces changes that are occurring in product development—from cell phones to .software and how these changes are driving down, the cost of experimentation and fundamentally altering how new product development should be managed. The chapter Outlines the, business objectives of APM and how organizations need to adapt to operating in Chaotic World.

Chapter 2 and 3 describe the value and principles that actuate APM. The value were first articulated in the Manifesto for Aglie Software Development, and the principles are derived from the Manifesto, but. They are adapted from a development to a project management perspective. Chapter 2 covers the principles related to customers and products, while Chapter 3 covers principles related to leadership and management. Chapter2 will also introduce you to Herman and Maya, project managers from different companies and different culture who will explore through a series of chapter opening dialogues some of the, principles and Practices of APM.

Chapters 4– 8 cover the APM process framework and individual practices. Chapter 4 describes the phases in the process framework—Envision, Speculate, Explore, Adapt, and Close—and Chapters 5-8 identify and describe practices in each of the phases.
Chapter 9, Building Large Adaptive Teams, examines how agile principles are used, together with additional Practices, to scale APM to larger projects and larger teams.
Chapter 10, Reliable Innovation, underscores how APM helps address' the changing nature of new product development, summarizes the role of the agile project manager, and reflects on the need for conviction and courage in implementing agile project management and development.

Acknowledgments

Thank God, who gives thought to the human and gives man the enjoyment of learning and thinking. We feel obliged to appreciate and thank all the esteemed professors from the faculty of Management and Economic department, Nanjing University of Aeronautics and Astronautics, that we acquire knowledge from them, especially:

Dr. Fang Zhi Geng as Supervisor that did not spare any efforts to guide us happily, and a heart full of grace and he was always encouraging and helpful.

Dr. Chen Ye the respected Advisor and Dr. Sifeng Liu, honorable professors of Management Science and Engineering faculty, Nanjing University of Aeronautics and Astronautics, who has offered constructive comments and has added the content enrichment. We hope luck and prosperity for all these honorable professors.

All books are collaborative efforts, and this one is no exception. Many people have contributed ideas, reviews, comments, and inspiration that have helped me turn my ideas about agile project management into the reality of this book.

Although We take full responsibility for the content of the book, We had a wonderful group of reviewers who contributed significant time and effort to turning my drafts into a final product

Our special thanks goes to Karen coburn, president of the Cutter Consortium, for her support of agile project management, and permission, to include material We wrote for various Cutter publications in this book.

Finally, our special respect and thanks goes to our parents for their support and helped us to improve and increase our knowledge without any pressure in our lives.

AmirHossein Akhavan Mofrad
Narges Bahrami

The Agile Software Development Series

Among the people concerned with agility in software development over the last decade, Alistair Cockburn and we found so much in common that we joined efforts to bring to press an Agile Software Development Series based around relatively light, effective, human-powered software development techniques. We base the series on these two core ideas:

1. Different projects need different processes or methodologies.
2. Focusing on skills, communication, and community allows the project to be more effective and more agile than focusing on processes.

The series has the following main tracks:

• Techniques to improve the effectiveness of a person who is doing a particular sort of job. This might be a person who is designing a user interface, gathering requirements, planning a project, designing, or testing. Whoever is performing such a job will want to know how the best people in the world do their jobs. Writing Effective Use Cases (Cockburn 2011) and Patterns for Effective Use. Cases (Adolph et al, 2013) are individual technique books.

• Techniques to improve the effectiveness of a group of people. These might include techniques for team building, project retrospectives, collaboration, decision making, and the like. Improving Software Organizations (Mathiassen et al. 2012) and Surviving Object-Oriented Projects (Cockburn 2008) are group technique books.

• Examples of particular, successful agile methodologies. Whoever is selecting a base methodology to tailor will want to find one that has already been used successfully in a similar situation. Modifying an existing methodology is easier than creating a new one and is more effective than using one that was designed for a different situation. Agile and Iterative Development: A Manager's Guide (Layman 2014), DSDM: Business Focused Development (DSDM Consortium 2013), and Lean Software Development:

An Agile Toolkit (Poppendieck and Poppendieck 2013) are examples of methodology books.

Three books anchor the Agile Software Development Series:

1. This book, Agile Project Management, goes beyond software development to describe how a variety of projects can be better managed by applying agile principles and practices. It covers the business justification, principles, and practices of APM.

2. Agile Software Development Ecosystems (Highsmith 2012) identifies the unique problems in today's software development environment, describes the common principles behind agile development as expressed in the Agile Manifesto, and reviews each of the six major agile approaches.

3. Alistair's book, Agile Software Development (Cockburn 2012), expresses his thoughts about agile development using several themes: software development as a cooperative game, methodologies as conventions about coordination, and families of methodologies.

You can find more about Crystal, Adaptive, and other agile methodologies on these Web sites:

- http://alistair.cockburn.us
- www.jimhighsmith.com
- www.agilealliance.org
- www.agileprojectmgt.com

CHAPTER 1

The Agile Revolution

1-1 Innovative Product Development

Product development teams are facing a quiet revolution in which both engineers and managers are struggling to adjust. In industry after industry pharmaceuticals, software, automobiles, integrated circuits-customer demands for continuous innovation and the plunging cost of experimentation are signaling a massive switch from anticipatory, to adaptive style of development. This switch plays havoc with engineers, project managers, and executives who are still operating with anticipatory, prescriptive mindsets and processes geared to a rapidly disappearing era.

Symyx creates and operates highly integrated, complete workflows that enable scientists to explore their ideas to discover and optimize new materials hundreds to thousands times faster than traditional research methods. These workflows consist of robotics that synthesize arrays of materials on a miniaturized scale, creating hundreds to thousands of tiny experiments on one silicon chip. These materials are then rapidly screened in parallel for desired physical and functional properties, including chemical, thermal, optical, electronic, or mechanical attributes. The results are captured in database systems for mining large sets of data to help scientists make well-informed decisions on the next steps of the discovery process1.

Symyx boasts 100 times the speed at 1% of the cost of traditional research. Drug companies used to design compounds for specific purposes by having scientists pore over how to make just the right one. Today they generate tens of thousands of compounds and then test them quickly using ultra-sophisticated, ultra-speedy tools such as mass spectrometers. There are new product development economics at work here.

---

[1] Quote courtesy of Symyx Technologies, Inc, www.symyx.com.

Now, one of the field's leading experts brings together all the knowledge and resources you need to use APM and PMP, in your next project. Amirhossein Akhavan Mofrad and Narges Bahrami, shows why APM should be in every manager's toolkit in order to increasing productivity thoroughly addressing the questions project manager raise about Agile approaches. They systematically introduces the five -phase APM framework, then presents specific, proven practices for every project participant.

Coverage includes:

- Six principles of Agile project management

- productivity increasing through PMPOK

-How to capitalize on emerging new product development technologies

- Putting customers at the center of your project, where they belong

- Creating adaptive teams that respond quickly to changes in your project's " ecosystem"

- APM's five phases: Envision, Speculate, Explore, Adapt, Close

Mojak Publication

ISBN: 978-600-8634-38-6