Table of Contents for

Flexible Product Development*

By Preston G. Smith

Jossey-Bass, September 14, 2007 © 2007 John Wiley & Sons

- Title Page
- Table of Contents
- Preface
- Introduction
 - SOURCES
 - TERMINOLOGY
- Chapter 1: Understanding Flexibility
 - DEALING WITH CHANGE
 - O HOW MUCH FLEXIBILITY?
 - Benefits of Flexibility
 - The Cost of Change
 - Managing the Convergence of Flexibility
 - The Downsides of Flexibility
 - THE ROOTS: AGILE SOFTWARE DEVELOPMENT
 - Extreme Programming
 - XP Practices
 - How Did XP Arise?
 - XP Values
 - Does XP Work?
 - MOVING FROM SOFTWARE TO OTHER PRODUCTS
 - o A NOTE OF CAUTION
 - THE PROJECT ANALYZER
 - o SUMMARY

• Chapter 2: Customers and Product Requirements

- THE FALLACY OF FROZEN REQUIREMENTS
 - Requirements Evolution versus Scope Creep
- THE VALUE OF CUSTOMER FEEDBACK
 - The MacCormack and Boehm Studies
 - The Overspecification Trap
 - The Principles of Iteration and Customer Feedback
 - Lowering the Cost of Iteration
- SPECIFY AT A HIGHER LEVEL
 - Product Vision
 - Personas
 - Use Cases
 - User Stories
- ANTICIPATE CUSTOMER NEEDS
 - Get into the Customer Experience
 - Lead Users
- PITFALLS OF CUSTOMER FEEDBACK

^{*} The table of contents in the book is one level shallower than this outline.

- Expert Customers
- Customer Desires and Customer Needs
- Internal Customers
- o SUMMARY

• Chapter 3: Modular Product Architectures

- MODULAR VERSUS INTEGRAL ARCHITECTURES
 - Advantages and Disadvantages of Modularity
 - Modularity Objectives
- EXAMPLES OF ARCHITECTURAL CHOICES
 - Automobile Design
 - Cordless Screwdriver
 - CD-ROM Drive
- ARCHITECTURAL APPROACHES
 - Reduce Coupling
 - Isolate Volatility
 - Provide for Growth
 - Align with Organizational Boundaries
- o FOUR STEPS IN DESIGNING AN ARCHITECTURE
- ARCHITECTURAL DECISIONS
 - Placement of Functions
 - Interfaces
 - Providing for Growth
- ARCHITECTURE AT THE DESIGN LEVEL
- SHIFTING THE HARDWARE-SOFTWARE BOUNDARY
- SUMMARY

• Chapter 4: Experimentation

- KINDS OF EXPERIMENTS
- THE VALUE OF FAILURE
- EXPLORATION AS EXPERIMENTATION
 - Planning Step
 - Construction Step
 - The Run Step
 - Assessment Step
- FRONT-LOADED PROTOTYPING
 - Traditional Versus Front-Loaded Strategies
 - Enabling Technologies
 - The Front-Loaded Style
 - Front-Loading Considerations
- TESTING
- SUMMARY

Chapter 5: Set-Based Design

- O WHAT IS SET-BASED DESIGN?
 - A Focus on Constraints
 - Supporting Technical Reports
- BENEFITS OF SET-BASED DESIGN
- MANAGING SET-BASED DESIGN
- DELAYING DECISIONS
 - Progressive Decisions

- THE DIFFICULTIES
- SUMMARY

• Chapter 6: Development Teams and People Factors

- TEAMS AND FLEXIBILITY
- HAVING THE "RIGHT" PEOPLE
 - Useful Experience
 - Mastery Levels
 - Great Teams from Average Individuals
- DESIRABLE PEOPLE QUALITIES
 - Skills
 - Dedication
 - Commitment
 - Generalists
- o TEAM QUALITIES
 - Self-Organizing
 - Cross-Functional
 - Adequate Authority
 - Co-Located
 - Partially Co-Located
 - Electronic Communication
- o SUMMARY

• Chapter 7: Decision Making

- IMPROVING DECISION-MAKING FLEXIBILITY
 - The Last Responsible Moment
 - Applying the Last Responsible Moment Responsibly
- PEOPLE AND DECSIONS
 - Reaching Consensus
- UNCERTAINTY AND DECISIONS
 - Reducing Uncertainty
- DECISION TREES
 - The Value of Perfect Information
 - Decision Trees in Practice
- REAL OPTIONS THINKING
- SUMMARY

• Chapter 8: Project Management

- FLEXIBLE VERSUS MAINSTREAM PROJECT MANAGEMENT
 - The Project Plan Is Not the Guide
 - Redefining Project Completion
 - Reorienting Quality
 - Individuals Over Processes
 - The Role of Tacit Knowledge
- THE ROLE OF A FLEXIBLE PROJECT MANAGER
 - Out in the Team Space
 - Supporting and Protecting the Troops
 - Clarifying and Enforcing the Product Vision
- PROJECT PLANNING
 - Planning versus Anticipation

- Rolling-Wave Planning
- Loose-Tight Planning
- TIMEBOXING
 - Expectations Management
- PROJECT RISK MANAGEMENT
 - Integrated versus Intrinsic Risk Management
 - Risk Management and Iterative Development
 - Managing Unknown Risks
- PROJECT METRICS
 - Strategic versus Tactical Metrics
 - A Flexibility Index
 - Burndown Chart
 - Team Mood
 - Sharing and Acting on Metrics
- PROJECT RETROSPECTIVES
- SUMMARY

• Chapter 9: Product Development Processes

- EMERGENT PROCESSES
 - Standardize in the Lower Layers
 - Build, Do Not Scale Down, Processes
- THE ESSENTIALS OF FLEXIBLE PROCESSES
 - Iterative and Incremental Innovation
 - Balancing Anticipation and Adaptation
 - Tacit Knowledge
- BALANCING STRUCTURE WITH FLEXIBILITY⁶
 - Balancing Opposing Risks
 - Shifting the Balance
- BOTTLENECKS AND QUEUES
 - The Myth of Capacity
- USEFUL CONCEPTS FROM AGILE SOFTWARE DEVELOPMENT
 - Refactoring and Technical Debt
 - You Aren't Going To Need It
- SUMMARY

Chapter 10: Implementing Flexibility

- FIVE PARADOXES
 - Top-Down or Bottom-Up?
 - Start Small or Start Big?
 - Start with a Piece or with the Whole Package?
 - Gradual or Ambitious?
 - Exposed or Sheltered Project?
- TRANSITIONS ARE THE CRUX
- TOP-DOWN CHANGE
- BOTTOM-UP CHANGE
- SUMMARY
- CLOSING
- Endnotes
- Bibliography

- Customer Council
- The Author
- Index