

Flexible Product Development

Techniques for Thriving in Fast-Moving and Uncertain Markets

AN INTENSIVE TWO-DAY WORKSHOP ON HOW TO BUILD DEVELOPMENT PROCESSES THAT CAN ACCOMMODATE CHANGE, EVEN WHEN IT OCCURS LATE IN THE DEVELOPMENT PROCESS, WITH MINIMAL DISRUPTION

August 8–9, 2006 • Chicago

THROUGH EXPERIENTIAL EXERCISES, LECTURES AND FACILITATED Q&A, YOU WILL LEARN:

- *How to time decision-making to keep options open, but keep schedules and budgets in line*
- *How to design your processes to respond to changes in technology, competitive offerings and customer preferences*
- *How to balance the need for structure against the need for flexibility*
- *How to embed effective risk management into the process with experimentation strategies that build and maintain options*
- *How to lower the cost of change throughout the process*

COURSE INSTRUCTOR:



Preston G. Smith

co-author of *Developing Products in Half the Time*



Register Today!

800 338 2223

www.ManagementRoundtable.com

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Why This Seminar Is Important to You

Change is a natural part of new product innovation. However, the processes and techniques that management commonly uses to develop products (Stage-Gate®, Six Sigma, and traditional project management, for instance) are not designed to facilitate change. Instead, they encourage heavy upfront planning and reward sticking to plan. Rather than resisting or denying change, why not build systems that embrace it?

This workshop shows you how to build such flexible product development systems. It applies principles from the successful recent model of agile software development, although most of the agile software tools do not translate to non-software products directly.

This topic is most timely. In these highly competitive times, pressures to get the most out of product development resources have pushed managers to structure their development so that it is predictable and to do everything right the first time to eliminate waste. Unfortunately, the same competitive pressures cause customers to change their minds and competitors to do unpredictable things while new technologies appear or do not work as advertised. That is, change happens.

The most successful new products are ones that exploit these changes. These products are truly new, and they excite customers. Developers who really listen to their customers and modify designs based on feedback from initial prototypes will face change. Those who opt to push new technologies will have to make changes as they go.

Consequently, this workshop starts from what will make a winning product—change—and proceeds to build development processes that can accommodate such change, even when it occurs relatively late in the development process, with tolerable disruption.

We will explore several categories of tools to enhance flexibility. We explain each tool and consider its strengths and limitations. Then we turn to a case study that runs for the length of the workshop, where we apply the tool to the case study project to gain essential hands-on practice in applying it. You will see not only how you apply the tool, but how others, working independently, apply it too.

About the Instructor



Preston Smith began specializing in rapid product development in 1984 as an internal consultant, became an inde-

pendent management consultant concentrating on time-to-market issues in 1986, and earned Certified Management Consultant (CMC) standing in 1990. He has led more than 100 workshops in 24 countries worldwide on advanced product development topics and has taught product development courses at several universities. Companies that have attended his workshops include: Siemens, Sony, Motorola, Medtronic, Nestle, Philips, Samsung, DaimlerChrysler, and Honeywell. He held engineering and management positions with North American Aviation (now part of Boeing), Pratt & Whitney Aircraft, IBM, Bell Laboratories (now Lucent Technologies), and General Motors Research Laboratories.

Preston is co-author of the popular book, *Developing Products in Half the Time*. Over 100,000 copies of this book are in use by managers in many industries. Preston is book review editor for the *Journal of Product Innovation Management*. He holds a Ph.D. in engineering from Stanford University, and is a member of the Product Development and Management Association (PDMA) and the Society of Concurrent Product Development (SCPD).

His interest in flexible product development began several years ago when he observed companies hamstrung by rigid development processes in fast-changing markets. He has learned about flexibility by participating in the rapid prototyping community (keynote speaker at six rapid prototyping conferences) and more recently in the agile software development community, where he was keynote speaker at the 2004 Agile Development Conference and was a founder of the Agile Project Leadership Network (apln.org). Preston is a member of the Agile Alliance.

WORKSHOP OUTLINE

Introduction

- Definition of flexibility
- Benefits of flexibility
- Where it fits and where it is unwise
- Reducing the cost of change
- The essence of Extreme Programming
- Flexibility practices mutually support each other
- Potential downsides
 - Amplified volatility
 - Indecisiveness
 - Focusing on tactics at the expense of strategy

Customers and product requirements

- The fallacy of knowing all requirements at a project's outset
- Frozen requirements versus customer feedback
- Customers don't use the features we give them
- Linking with specific customers
 - Use cases
 - Personas
 - Lead users
- Where customer feedback can lead you astray
- Obtaining customer feedback quickly and efficiently
- The power of a product vision

Modular product architectures

- Modular versus integral architectures
 - Advantages and disadvantages
- Applying architecture as a strategic tool rather than a technical tool
- Architectural objectives
 - How to choose them
 - Difficulty of having more than one
- Why enforcing architectural rules is critical
- Examples of actual architectural choices
 - CD-ROM drive
 - Electric screwdriver
- Perfect versus imperfect modularity
- The four steps in designing an architecture
- Understanding interactions: the design structure matrix
- The price of modularity
 - Transitioning from modular to integral architecture

Experimentation

- The different kinds of experimentation: analysis, experiments, prototypes, simulations, etc.
- The value of failure
 - Implications for experimentation approach
- Hypothesis-based approach
- Front-loaded prototyping
 - Traditional versus front-loaded strategies
 - Enabling technologies
 - Economic drivers
 - Where not to prototype
 - Front-loaded strategies
 - How many prototypes?
 - Why and when?
 - How many in parallel?
- Testing
 - Running your "chicken test" early
 - Test-first approach
 - The value of automated testing

Set-based design

- Value: delaying critical decisions
 - Reduce the cost of change
 - Have better information later
- The flexibility benefits of
 - Discovering constraints rather than making choices
 - Maintaining options
- The design space
 - Understanding it
 - Narrowing it progressively
 - The importance of design convergence
- Set-based goes against the way engineers are trained
- Going beyond the Toyota model

Development teams

- People are more important than processes and tools
- The "right" people are essential to success
- But they don't have to be perfect
 - Cockburn mastery levels
- The value of generalists
- Pigs, chickens, and cows
- Establishing authority levels in advance
- The power of co-location
 - How it is done in Extreme Programming
 - Workarounds when it isn't possible
- The daily stand-up meeting
- How to enhance the team's electronic communication

Decision making

- Decisions are at the core of product development
 - For flexibility, decisions must be made in a flexible way
 - That is, at the last responsible moment
- Uncertainty is characteristic of decisions
 - This suggests collecting information in advance to reduce uncertainty
- Applying the last responsible moment responsibly
- Working with linked decisions
- Using decision trees
 - Sensitivity analysis
 - The value of perfect information
- Project scope-schedule-resource decisions
- Project economic trade-offs
- The benefits of consensus
 - Reaching it quickly

Project management

- Flexible project management is much different than traditional project management
 - The project schedule isn't always the guide
 - Individuals are more important than processes
 - Responding to change is more important than following a plan
 - "Corrective action" often means changing the plan
 - Project completion means delivering value rather than finishing the plan
- Rolling-wave planning
- Timeboxing
- Risk management, rather than being certain steps in a subprocess, is the process (because the whole project is risk-driven)
- Valuable project metrics
 - Burndown chart
 - Team mood
- Learning how to say "no"

Product development process

- Balancing between structure and flexibility
 - Balancing the opposing risks
 - Different for each project
 - Different for different facets of a project
 - Changes over the life of a project
- Phased processes don't mesh well with innovation activities
- Incremental innovation
 - Advantages and limitations
- Bottlenecks and queues
 - Importance to flexibility
 - The myth of capacity
- Useful concepts from agile software
 - Visual controls
 - Refactoring and technical debt
 - You aren't going to need it (YAGNI)
- Build up processes, don't tear down

"[This workshop] provided data and benchmarks to look at the development process differently."

Carl Bender, Process Manager, Texas Instruments

"[The class] offered a sense of the complexity/range of solutions that are available."

Namwook Paik, Design Engineer, American Power Conversion

Who Should Attend

Managers leading and planning new product development and members of development teams. Executives who wish to rethink whether their current strategies are producing the new-product results they desire in the turbulent environment they face.

The more you face change and uncertainty in developing new products, the more valuable this workshop will be. And if you are not facing change, are your new products innovative?

Although this workshop is aimed at non-software products, which have not had an agile methodology heretofore, agile software developers will find it valuable to strengthen their understanding of agile approaches.

“Good material, well done, well presented, with real-world examples and results.”

Dick Nova, Program Manager,
Medtronic-Physio Control

“[This is] the first time I’ve seen the whole [product development] process presented instead of just isolated thoughts or ideas.”

Dave Tegg, Product Center Manager,
Schlumberger-Dowell

“The seminar was filled with valuable yet simple-to-understand information. Preston [Smith] has excellent presentation skills.”

Steven Huard, Engineering Manager,
Parker Hannifin

ABOUT MANAGEMENT ROUNDTABLE



The Management Roundtable (MRT) is the foremost knowledge and networking resource for industry practitioners involved in product, service, technology, and business development. Practitioner-oriented and unbiased, MRT’s focus is on strategies and processes that enable speed, innovation, profitability, and overall competitive advantage. Through its highly regarded conferences and publications, MRT has helped companies achieve their objectives since 1980. Its newest membership offering, the Management Roundtable FastTrack, (<http://fasttrack.roundtable.com>) offers direct, year-round access to leading-practice insights via teleconference and online reports.

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4 WAYS TO REGISTER:

CALL: 1-800-338-2223 or 781-891-8080
(weekdays, 9:00am–5:30pm EST)

FAX TO: 781-398-1889

INTERNET: www.ManagementRoundtable.com

MAIL TO: Flexible Product Development
c/o Management Roundtable
92 Crescent Street, Waltham, MA 02453

Please accept the following registration for the “Flexible Product Development” workshop at \$1995/person:

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WORKSHOP FEE: \$1995/person. Fee includes all program materials, luncheons, continental breakfasts, networking reception, and refreshment breaks.

DATES: The workshop will be held August 8-9, 2006. Registration and continental breakfast begins at 7:00 am on Day 1; session begins at 8:00 am and concludes at 4:00 pm on Day 2. See our website for additional information: www.ManagementRoundtable.com.

LOCATION & HOTEL ACCOMMODATIONS: This workshop will be held at the **Crowne Plaza Hotel Chicago-Metro**, 733 West Madison Street, Chicago, IL 60661 (www.ichotelsgroup.com/h/d/cp/1/en/hd/chish). For reservations call please call 1-877-227-6963 and mention that you will be attending Management Roundtable’s **Flexible Product Development** workshop. Room rate: \$149. Deadline: July 12, 2006.

NO-RISK GUARANTEE: Your satisfaction is 100% guaranteed—money-back or credit. If you’re not satisfied with the quality of this program, let us know in writing and we’ll refund your entire registration fee.

CANCELLATIONS/SUBSTITUTIONS: You may send a substitute attendee in your place at any time with no penalty (please inform us in advance if possible). Cancellations made within 5 business days of the event are subject to a \$200 administration fee OR the full fee can be credited towards a future purchase. No-shows are liable for the full fee.

WORKSHOP ATTIRE: Business casual.