Achieving Lean Product Development:
Techniques, Economics & Implementation

An intensive two-day workshop on practical, economically justifiable
approaches for applying lean techniques to product development.

MARCH 3-4, 2009
SAN DIEGO, CA

Course Instructor:
— DON REINERTSEN —
Author of *Managing the Design Factory*
and Co-Author of *Developing Products in Half the Time*

Through experiential exercises, lectures and facilitated Q&A, you will learn how to:

❑ identify the six ways that queues cause economic damage

❑ use batch size reduction and WIP constraints to improve flow

❑ form fast feedback loops to increase quality and efficiency

❑ reduce the economic cost of variability without stifling innovation

❑ develop a step-by-step implementation plan to incorporate lean principles into your own
development process

*"Don is a dynamic and influential resource who effortlessly transfers
knowledge, leverages experience and provides clarity to typical product
development pitfalls. He has a knack of challenging existing paradigms
and offering more insightful approaches to enable excellence. Your eye-
opening experience is a seminar away."*
— Chris Bardeggia, Director of Engineering, Whirlpool Corporation

Who Should Attend
This program is designed for managers who currently play a role in product development. ***It will be particularly useful to
companies that are reaching the point of diminishing returns using conventional approaches to product development
and those who wish to quickly get benefits using lean methods.*** It is preferred that participants have a basic understand-
ing of lean techniques and at least 5 years of experience in product development. Attendees should bring a calculator,
since the course will involve some light calculations. The techniques covered are general methods of analysis rather than
industry specific rules. Just as physics applies to both large objects and small ones, the methods used in this course can be
applied in a wide variety of industries.

Register Today! Call 1.800.338.2223
www.ManagementRoundtable.com

Why Lean Product Development?

The techniques that are now called "lean methods" have been used for over 50 years in production processes, producing huge economic benefits. These same methods also can be used in product development. In fact, they are the only approach available to simultaneously achieve large improvements in the speed, quality, and cost of product development. However, using lean methods in product development requires some insight. To succeed we must have a clear idea of what management practices obstruct flow, and how to remove these obstructions. Without this insight we will dilute our energy in lengthy process mapping exercises, and ultimately lose momentum. This workshop focuses on known leverage points. It concentrates on specific practical methods that have helped participants achieve as much as a 90 percent reduction in cycle time. It uses a unique economic approach to identify which methods will provide the fastest payback and teaches you the science behind the methods. *This seminar is fundamentally different from other workshops in its intense focus on economic justification and practical methods rather than general philosophical principles*.

About the Instructor

DON REINERTSEN, the lead instructor, is President of Reinertsen & Associates, specializing in the management of the product development process.

Before forming his own firm, he consulted at McKinsey & Co., an international management consulting firm, and was Senior Vice President of operations at Zimmerman Holdings, a private diversified manufacturing company. His contributions in the field of product development have been recognized internationally. He is particularly noted for bringing fresh perspectives and quantitative rigor to development process management.

In 1983, while a consultant at McKinsey & Co., he wrote a landmark article in *Electronic Business* magazine that first quantified the value of development speed. This article has been cited in the frequently quoted McKinsey study that indicated "6 months delay can be worth 33 percent of lifecycle profits." He coined the term "Fuzzy Front End" in 1983 and began applying world class manufacturing techniques in product development in 1985. His latest book, *Managing the Design Factory,* is recognized as a powerful and thoughtful application of manufacturing thinking to product development.

Don is also co-author of *Developing Products in Half the Time*. He holds a B.S. in Electrical Engineering from Cornell University and an M.B.A. with distinction from Harvard Business School.

About Management Roundtable

Management Roundtable (MRT) is the leading knowledge and networking resource for product developers. Practitioner-oriented and unbiased, our focus is on providing actionable information about new innovations, processes, tools, and technologies that enable faster time to market, increased profitability, and overall competitive advantage.

Founded in 1980, Management Roundtable publishes newsletters, hosts a variety of specialized conferences, workshops, and audio-sessions and conducts onsite training. Its premium web-based service, *FastTrack*, was launched in 2004 to advance product development, innovation and collaboration. This service offers continuous, unlimited access to competitive insights and facilitates introductions among industry practitioners for benchmarking and partnering.

Course Outline

I. INTRODUCTION

Most companies applying lean methods to product development fail to appreciate the critical differences between repetitive manufacturing processes and non-repetitive development processes. Such differences mean that waste is found in very different places. Until this is recognized, companies will only attack easily visible, but superficial forms of waste. This section will cover:

- An overview of how lean techniques improve product development speed, quality, and cost
- An understanding of the critical differences between product development and manufacturing
- An explanation of importance of Design-in-Process Inventory

II. ESTABLISHING AN ECONOMIC FRAMEWORK

Every product development process has multiple economic goals. To balance these goals we must express them in the same common denominator. For example, we must quantify the Cost of Delay do determine the economic cost of queues in our process. This section will cover:

- How to quantify the Cost of Delay
- How to use information to improve decision-making

III. UNDERSTANDING VARIABILITY

Variability is a greatly misunderstood concept in product development. Paradoxically, you cannot add value in product development without adding variability, but you can add variability without adding value. A product must be changed to add value, and this change creates uncertainty. This section will cover:

- How to distinguish between good and bad variability

- How to eliminate unnecessary variability
- How to reduce the economic impact of necessary variability

IV. MANAGING CAPACITY UTILIZATION

Many developers still view product development determin-istically, assuming that an excess capacity is waste. In reality, development processes need excess capacity to function optimally in the presence of necessary variability. Using queueing theory we can get strong insights on how to quantify the true cost of process queues. This section will cover:

- The 10 most important product development queues
- The two fundamental causes of queues
- How to quantify the economic tradeoff between queue size and excess capacity
- How to measure and manage queues

V. REDUCING BATCH SIZE

In manufacturing batch size reduction is the single most important factor leading to order of magnitude reductions in cycle time. In contrast, batch size reduction is dramatically underutilized in product development. This section will cover:

- The importance of small batch size and how to achieve it
- The ten most common batch size problems in product development

VI. USING CADENCE AND SYNCHRONIZATION

Most development processes move work products when deliverables are complete. This drives variability into the schedule. An alternative approach is to move work products on a regular cadence. Product developers using techniques like daily stand-up meetings have achieved large cycle time improvements. This section will cover:

- How a regular cadence reduces variance
- How synchronization reduced queues
- Examples of synchronized cadence in development processes

VII. USING WIP CONSTRAINTS

Most product development processes "push" work to downstream processes. They try to schedule activities in great detail, at long time horizons. This detail inherently leads to much rescheduling and waste. In contrast, "pull"-based systems smooth flow by using WIP constraints. This section will cover:

- The science and economics of WIP contraints
- Two practical ways to react to WIP explosions
- The importance of T-shaped developers

"Best linkage I've seen of LEAN techniques/termi-nology to design/development activities"
— Kathy Mullen, Design Quality Lead, United Defense

VIII. ACCELERATING FEEDBACK

Slow feedback loops cause enormous waste in product development. Yet, many developers do not measure feedback speed or try to improve it. Well-structured feedback loops actually create spectacular opportunities to smooth flow and improve quality. This section will cover:

- Why fast feedback is critical
- How feedback reduces variability and improves flow

IX. DECENTRALIZING FLOW CONTROL

Manufacturing uses simple methods like First-in-First-out (FIFO) flow control. Because development projects have different costs-of-delay developers need well-designed priority systems to reduce the total cost of queues. This section will cover:

- How dynamic flow control differs from detailed planning and scheduling
- Using economically-grounded methods for setting task and project priorities
- The mindset change needed to achieve decentralized control

X. FINDING WASTE

Because product development processes add value in different ways than manufacturing processes, waste is found in different places. Typically, waste shows up in predictable places in development processes. This section will cover:

- Ten common areas of product development waste

XI. IMPLEMENTATION

The final section will review factors that are likely to lead to successful implementation. Course participants will begin designing a plan for implementation. This section will cover:

- How to initiate pilot programs and scale them up
- A group exercise to identify immediate next steps

"I was very encouraged to have rigor and benefit #'s associated with "common sense," which is often opposed to required work processes and approaches. Using analytical tools will help me form and articulate recommendations that will be believed and have positive business impact."
— Jeff Coult, Sr. Manager, Engineering, Honeywell

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March 3-4, 2009 in San Diego, CA

Registration Information

Dates/Schedule: The workshop will be held March 3-4, 2009 in San Diego. Registration/continental breakfast begins at 7:30 a.m. on Day One and ends with a reception at 6:30 p.m.; on Day Two, session begins at 8:30 a.m. and concludes at 4:30 p.m..

Location & Hotel Accommodations: The workshop will be held at the **Hilton Gaslamp**, 401 K Street, San Diego, CA, 92101, please call 1-800-HILTONS for reservations. A limited block of rooms is available at a special rate until January 30, 2009, please reserve early and mention you are attending *"Management Roundtable's Lean Product Development Workshop."*

Workshop Fee: $1995/person. Fee includes program materials, luncheons, continental breakfasts, and refreshment breaks.

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.

Workshop Attire: Business Casual

Participation Restrictions: Due to limited space, this workshop is offered exclusively to industry practitioners. Sorry, but registration applications will not be accepted from academics or consultants.

Four Ways to Register:

Call: **1-800-338-2223 or 781-891-8080** (weekdays - 9:00am - 5:00pm EST)
Fax to: 781-398-1889
Internet: info@roundtable.com or **www.ManagementRoundtable.com**
Mail to: Management Roundtable, 92 Crescent Street, Waltham MA 02453

Please accept the following registration(s): (please use photocopies for additional people)

❑ **Achieving Lean Product Development - March 3-4, 2009 in San Diego, CA**

Name: Mr/Ms _____

Title: _____

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Payment Information - (Amount $ _____)

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