

## Foreword to the Second Edition

The first edition of Allen Ward's *Lean Product and Process Development*, published in March 2007, has become a classic in the lean community. Readers around the globe have become enthusiastic advocates of the concepts and practices that it introduces. It is one of my personal favorites among all books from any publisher about lean thinking and practice. As the first edition has steadily gained eager users keen to learn more, and as interest in the application of lean thinking in design and engineering processes has amplified, a growing number of requests left us with little choice but to produce a second edition. We asked Durward Sobek to take on the role of editor for the task of producing this updated and expanded second edition.

Durward was the only choice for the task. Professor of Mechanical and Industrial Engineering at Montana State University, cofounder and leader of the LPPD Exchange Inc., Durward was Allen Ward's premier student of all things LPPD at the University of Michigan. Durward's Ph.D. research (his committee consisted of Allen Ward and Jeffrey Liker as cochairs) compared the product development systems of Toyota and Chrysler. This was during a period (the mid-1990s) when the contrast between the two systems was especially compelling and enlightening. Toyota's system had proved itself decidedly superior to others in its industry while Chrysler, under the direction of a dream team of senior leaders in charge at the time, was being widely praised for the innovation and execution of its design and product development system.

Durward scrutinized the text of the first edition with an engineer's eye for detail, made corrections where necessary, provided updates where called for, and contributed insightful additional material where helpful. Specifically, the improvements you will find include:

- Updating throughout
- New examples and illustrations
- Five insightful, original case studies
- A helpful index

## **The Lean View of Product Development, Design, Engineering—and Innovation**

Lean was introduced to the world as the new business paradigm with the publishing of *The Machine That Changed the World* in 1990. In that groundbreaking book, roughly equal treatment was allotted to design, production, supply chain, and sales and marketing. In the interim, though, most discussion of lean has focused on direct manufacturing operations.

This is a bit curious and most unfortunate. Manufacturing the product is, of course, paramount. But, equally true is the simple fact that answering customer wants and needs begins with determining what product or service to provide and continues with designing operational value streams that are able to provide it.

Al Ward tells us that the aim of development is in fact the creation of profitable operational value streams. The lean community has spent a lot of time concerning itself with kaizen on factory floors and remarkably little on the upstream processes—design, engineering, development—that create them.

That should change ... now.

Al reminds us that the purpose of this book is to address the simple question, “How can you make all of your development projects make a lot more money—and have more fun at the same time?” A compelling invitation, indeed!

### **From the Gemba: Five New LPPD Case Studies**

The most frequent question from readers of the first edition has been: “I understand the concepts, but I need more real-world examples to give me a better sense of what I should do in my situation ...” Therefore, this expanded second edition features five insightful, original case studies:

- *Scania*. Durward Sobek spent the 2011–12 academic year in residence at the Chalmers University of Technology in Sweden, where he learned of the major LPPD implementation in Scania. Unlike passenger-car customers, freight-truck customers specify highly unique configurations to the products they order. As a major large truck manufacturer, Scania’s challenge is to manage the interface between demanding customers, production operations, and engineering.

- *Ford Motor Company.* Jim Morgan was another member of the team of researchers at the University of Michigan that studied Toyota’s product development system through much of the 1990s. Jim had the opportunity to put his studies to practice as he led a key piece of the remarkable turnaround of Ford beginning in 2006. This case study explains how applying lean product and process development to Ford’s complex global body engineering organization led to improvements such as a 60% reduction in lead time, quality that is now industry-leading, and greatly improved customer and employee satisfaction.
- *PING.* Former Director of Innovation Dan Shoenhair shares how lean product development helped PING meet the challenges of the highly-competitive, short-cycle, new product introduction requirements of the golf equipment industry. He explains how PING transitioned from a “design, then test” shop to “test, then design”—*a radical system redesign*. PING’s use of specific LPPD tools, such as trade-off curves, contributed directly to increasing output of new products by 500%, while reducing development lead time by 50%—all with no increase in resources.
- *Goodyear Tire and Rubber Company.* Norbert Majerus is a longtime student of product development systems and an experienced practitioner in applying lean principles to the arduous product development circumstance of Goodyear. As a major supplier to all the global automotive OEMs and after-market products to virtually every country, Goodyear has an extraordinarily demanding customer base. Failure to deliver expected quality or meet launch dates is simply not an option. This case will illustrate the LPPD processes, such as pull, single-piece flow, and visual control, that Norbert and his team have put in place and led to such improvements as a 70% reduction in lead time while making it *easier* to manage the complexity of launching 1,500 products per year.
- *Menlo Innovations LLC.* Menlo is no ordinary software company. Its cofounders set out to create a “joyful” company, one that would create joy in the lives of employees and customers. In doing so, they (perhaps unwittingly) created a product development system characterized by innovative applications of lean product and process principles. Read this case and be inspired to start your own lean journey.

As we launch this second, expanded edition, a new era of lean thinking is emerging that challenges many old assumptions. And new experiments are being undertaken as adjacent communities such as Lean Startup, Design Thinking, and the “Maker” movement, bring new energy, ideas, and perspectives to ongoing challenges.

Please share the results of your experiments with the Lean Community. Send your feedback and insights to us at [info@lean.org](mailto:info@lean.org) or the LPPD home page. Or submit your own story to *The Lean Post*, where you can read about the latest adventures in LPPD and other topics from Durward Sobek, Jim Morgan, and others. Whatever the venue, we want to hear from you.

Most importantly, we want you to read the book ... and get started!

To quote the author, “Lean development’s goal is learning fast how to make good products.” So, the faster you get started, the faster you learn. Where, you ask? Just follow Al’s advice, “You can start change where it feels best. Just don’t stop. Don’t ever stop. Part of (the best part?) lean development is that you keep learning how to do it better, forever.”

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