

■ PETER T. ITTIG, Feature Editor

In the following article, Eric Olsen reviews a new book by Richard Schonberger, who received the Shingo Prize for Excellence in Manufacturing, an award in manufacturing management from the Institution of Production Engineers (UK), and an award in production and inventory control from the Institute of Industrial Engineers. Schonberger is a former Holmes Professor at the University of Nebraska, Lincoln.

## A Deeper Look at Lean Best Practices

by Eric O. Olsen, California Polytechnic State University

I had the pleasure of being at the inaugural meeting of the Lean Educators' Academic Network (LEAN) in August 2005. The meeting consisted of about 25 professors, consultants, and industry representatives who had set about the work of figuring out how to incorporate lean thinking into operations management curricula at the university level. It was a high-powered group with Jim Womack and several other lean authors and leaders in the audience. At an early stage of the meeting, when introductions were called for, each participant was asked to share his or her personal lean journey. It was surprising to me—though it should not have been—that a quarter to a third of the participants shared that their lean journeys started with their exposure to the works of Dick Schonberger. That is where my own passion for lean started.

As a new manufacturing engineer for Hewlett Packard in 1989, I was struggling to make sense of my job. Perhaps it was not all about fighting fires. A remote satellite transmission class held on site (an early predecessor to the now ubiquitous free Webinars on lean), talked about a book called *World-Class Manufacturing: The Next Decade* by Richard Schonberger (1986). I got a copy of the book and was hooked. I started sharing the “principles” of world-class manufacturing with my colleagues at brown bag lunches and experimenting with applications. Even though Hewlett-Packard is often cited as an early adopter of just-in-time (JIT), it was a big decentralized company. In the Components Group, of which I was a part, we moved into Southeast Asia early

(1967) to take advantage of abundant low-cost, skilled labor. We did not need to “undertake lean first and foremost to survive” (p. 23), but the description of best practices and underlying principles of world-class manufacturing were like a life-line to many of us trying to make sense of manufacturing’s role in a global economy. Eventually we got Schonberger to spend some time with us at various HP sites in the U.S. and in Southeast Asia, and he and I became friends and fellow



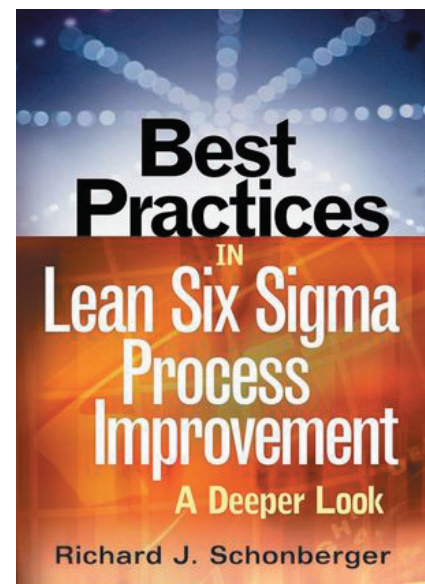
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his PhD in operations management from the Ohio State University. His research interests include lean thinking and performance measurement.

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***Best Practices in Lean Six Sigma Process Improvement: A Deeper Look***  
Richard J. Schonberger

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solution-seekers. That he had visited many companies in the book both in the 80's and more recently, provides more credibility for his observations.

Since his first book, *Japanese Manufacturing Techniques: Nine Lessons in Simplicity* (1982), Schonberger has been on the forefront of bringing forward what we now call "lean." If one thinks about it, lean is a fairly improbable name for a paradigm that has had various incarnations as JIT, time-based competition, Japanese manufacturing techniques, and world-class manufacturing. In his new book, *Best Practices in Lean Six Sigma Process Improvement: A Deeper Look*, Schonberger (2008) is again sharing his insights on over two decades of study, analysis, and consulting in the field we now call lean six sigma. The main premise of the book is that "there are many ways to become lean" (p. viii). By a "deeper look," Schonberger observes, as have others (Womack, 2007), that lean is not easy to sustain. Even icons of lean like Toyota and Danaher have not sustained one of the key financial indicators of lean success: inventory turns. His message is rich with examples, speculation, challenges to the status quo, and best practices that show that lean is not a *fait accompli*. There is more to learn about what makes a lean company successful in a given circumstance.

The book is broken down into six parts. Each part looks at lean six sigma from a different perspective. The first part sets up the financial criteria for leanness and begs the question, "Can a company be lean if it does not practice the 'lean core'?" The lean core is identified as practices that have mainly originated in Japan with Toyota, namely, "cells, kanban/pull system, quick setup, small lots, supplier partnership, total productive maintenance, and so on" (p. ix). Schonberger argues that leanness is ultimately determined externally in the eyes of the customer. He offers the "golden goals" of "ever-better quality, quicker response, greater flexibility, and higher value" (p. 10). By setting up the argument in this way, companies can be lean by not explicitly implementing all the lean core

or the Toyota Production System (TPS). This is a refreshing reminder, as we in the lean field tend to accept the validity of the TPS and have become implementers, or worse yet, apologists for lean as the answer to all manufacturing's problems. What do we do when lean becomes the "establishment"? Can best practices take us beyond lean? Schonberger points out that in terms of performance there are several companies who we would inherently consider lean, such as Dell and Wal-Mart, that do not have explicit lean programs and then there are lean icons like Toyota and Danaher. By looking at the practices of these companies, Schonberger helps us understand the practices or lack of practices that make a company "lean with a capital L" (p. viii).

The key financial performance measure, and surrogate for externally determined lean implementation used by Schonberger, is inventory-turns. He correctly observes that improvement in inventory-turns has been the only financial measure constantly associated with lean in the research literature, and that other, more bottom-line financial measures have been less consistent (i.e., Biggart & Gargeya, 2002; Boyd, Kronk, & Skinner, 2002; Kinney & Wempe, 2002). Schonberger devises a grading system of A, B, C, D, and F based on the number of years in improving or declining inventory trends. An analytical empiricist might find fault with both the limited number of performance measures and the crude measurement scale. My conclusion, after reading the book, was that the inventory-turn data, if not made a point of fixation, provides a compelling plot device to keep the story moving forward. The simple ABC classification system provides an easy way to differentiate company performance. Enough additional data were always provided in graphical form and in ample endnotes to tell a more complete story.

As always, Schonberger's observations on best practices are some of the best parts of the book. These observations brought back fond memories of book study groups (p. 180) when we were experimenting and trying new ideas

right on the factory floor. When we were told, "We have found the answer and it is lean," there was a shift in research to understanding and implementing lean as a cohesive holistic, rather than a shifting and evolving set of ideas to be added to and perfected. We were guilty of the lean sin of jumping to cause, and stopped asking the bigger question. Even now that we are digging deeper into why and how lean works, we are in danger of acting out that old joke about losing your keys in the dark, but looking for them under the street lamp because the light is better. We are getting to the point where there are many companies implementing lean and the light is getting better. Schonberger points out that a fair bit of data are already in and it shows that lean is very hard to sustain.

Part Two of the book gives Schonberger an opportunity to do the other thing that that he does best: challenge sacred cows. In conceding the positive aspects of the lean core, he takes on extremists who view the seven wastes as finite and definitive by offering up additional wastes such as "analyzing the waste" and "costing the cost reductions" (p. 49). He differentiates true kaizen from the type of "discontinuous improvement" represented by "kaizen blitzes" (p. 50). He is also harsh on going to "gemba" or the "action zone" if it is limited to upper management or becomes a code word for micro-management. Best practices include "full engagement" of the entire workforce and "competitiveness training" (pp. 51-53). Our mis- and over-reliance on even a reduced set of lean metrics also takes a hit in this section. Although positive and upbeat about the inroads made in lean accounting, Schonberger warns about unlean practices such as "replacing conventional profit-and-loss (P&L) reporting with lean, activity-based P&L reports.... Lean means less" (p. 58). The call for fewest controls and controllers adds to an underlying theme for this book. The best companies doing lean are able to see beyond the standard rhetoric and practices to develop a unique capability that gets lean results without adding work, even if it is a lean practice.

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Catchy subtitles throughout this section such as “data superseding metrics” (p. 60), “three misunderstood measures of performance” (p. 65), “the OEE fallacy” (p. 67), “goal backlash” (p. 74), and “overactive dashboards” (p. 77) offer ideas that challenge the status quo.

The third part of the book is titled “Building a Competitive Fortress.” Schonberger offers four approaches, with example companies that have varying levels of compatibility with lean. The first is fortress by culture. Nordstrom and 3M serve as examples of companies that have strong internal cultures built around a competitive strength. For Nordstrom it is customer service and for 3M it is innovation. Strong cultures tend to be less obsessive about process improvement paradigms such as lean except where it is directly aligned with their cultural focus. The second is the “make the numbers or else” fortress as exemplified by GE and Emerson Electric. This approach offers a love affair with process improvement when the numbers are improving, but even best practices are relegated to short-term memory when share price is under pressure. The third approach is intensive management of process improvement itself as exemplified by the Toyota Production System. Schonberger makes the point that this approach has a tough time long term without the addition of a “big idea” (p. 111) business model to provide focus. Toyota combines lean with outstanding quality and reliability in the eyes of the customer. The big idea business model provides the basis for the fourth approach. Epitomizing the big idea model are companies such as Wal-Mart and Dell. For Wal-Mart it is “everyday low prices” that drives the need for improvement. For Dell it is the challenge of providing custom computer systems ordered over the Internet and received in days rather than weeks or months. The lack of a compatible big idea is offered as a major reason why lean may not be sustainable in many companies.

The fourth part of the book looks at what, other than the lack of a driving big idea, can “put the brakes on lean.” Growth has been especially problematic

for some lean companies. Toyota’s sales have risen 5 percent per year for 20 years and its inventory turns have decreased by 4 percent per year mostly due to increases in finished goods inventory. Harley Davidson, another lean adherent, has seen the opposite effect. It has grown sales 5.3 percent per year and improved turns by 3.9 percent over about the same time period as Toyota. Changes in leadership have often been cited as a reason for lean decline and resurgence. Schonberger provides historical perspective on the management changes and the effect on the process improvement programs at Milliken, GE (white goods), Westinghouse, Wiremold, American Standard, and Steelcase. “Capacity deprivation” (p. 143) is another condition that puts the brakes on lean. It is paradoxical that when lean practitioners say “lean means less” they should immediately follow that with the caveat: “except for capacity.” High capacity utilization due to increased sales can be one result of lean success. Schonberger highlights how lean companies must find ways to increase capacity to maintain low inventories and flexible, responsive systems. The final way to put the brakes on lean is by “knowledge mismanagement” (p. 147). Schonberger provides best practice examples and cautionary tales from companies that have invested in acquiring lean knowledge and have maintained or lost it to varying degrees.

In part five of his book, Schonberger offers new images of lean and ways to get it. In this section, Wal-Mart and Dell replace Toyota on the cutting edge of lean. It is not unexpected that two experts in supply chain management would dominate in a globally competitive landscape. They not only have big idea business models that thrive on process improvement, but they also have become experts at using information technology and supplier collaboration. The cartel-like *keiretsu* system used in Japan, once thought to be a strength and an enabler of TPS, is too protective of members. Dell and Wal-Mart “have elevated global standards for competitiveness” (p. 161). Other best practices that Schonberger highlights in

this section are “importing/exporting lean expertise through acquisitions and mergers” (p. 170); offering challenging work to retain lean managers, staying true to the principle of simplicity as “lean initiatives, in large corporations anyway, are mind-numbingly complex” (p. 174); guarding against “model proliferation undoing leanness” (p. 176); and getting back to the days when “the old guard read everything ... went anywhere and everywhere to learn lean and experimented extensively with acquired knowledge” (p. 180). There are sections on best practice design of lean facilities and production lines. Part Five concludes with an extended discussion of how the best companies are handling external linkages to customers and suppliers. It is an epilogue to Schonberger’s last book, *Let’s Fix It: Overcoming the Crisis in Manufacturing* (2001) where he describes opportunities for companies to improve in supplier/customer coordination, standardized designs, marketing-operations teamwork, and performance measurement.

*Best Practices in Lean Six Sigma* ends with a look at leanness across 33 industrial sectors. Schonberger once again finds interesting paradoxes in how well the usual suspects are doing on lean implementation and performance. In his analysis, electronics comes out in the lead even as Original Equipment Manufacturers (OEMs) outsource to a booming category of electronic manufacturing services on a global scale. Although the motor vehicle industry was easiest to adopt lean, it still lags behind other industries in reaching its full lean potential. A surprising—and late—lean arrival is the aerospace-defense industry. OEMs are clearly on the lean bandwagon, although their suppliers are still struggling. Other industries, such as petroleum, pharmaceuticals and retail, are presented to highlight unique relationships to lean. Schonberger treats all his observations from the external lens of inventory-turns and a closer perspective of individual companies and best practices in lean.

This book can be used in several ways. It is not a beginner’s book on lean,

although high-level business managers and finance people (i.e., skeptics) may find it a friendly segue from their own paradigms. Implementers and researchers can renew their own skepticism about what works and what does not. Practitioners can scour the pages for best practices and insights on how to improve their own improvement programs. Researchers can apply more rigorous financial and statistical analysis techniques to test the premises put forward in the book. As more companies arrive at the lean frontier, we are back to a contingency-(best practice)-based approach that needs to be explored and understood. Finally, we can wait for history to unfold. Based on this update to the global lean journey for world-class manufacturers, we can wait and see. As Dick Schonberger says, "Best practices, as a whole, is about responding to the customer quickly, dependably, and well. Process improvement is not a short-term pursuit, nor a narrow one. It is never-ending" (p. 274).

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*DSI members are invited to suggest books that should be reviewed in this column and reviewers to review them. Responses, suggestions or letters to the Feature Editor may be sent to: Peter T. Ittig, Feature Editor, Peter.*

## NAMES IN THE NEWS

CAROL LATTA, Executive Director, Decision Sciences Institute



**P. George Benson**, president of the College of Charleston, received an honorary Doctor of Humane Letters degree from The Citadel on May 4, 2008. Previously, Dr. Benson served as

the dean of the University of Georgia's Terry College of Business and Rutgers University's Business School. He was named a Fellow of the Decision Sciences Institute in 2000.

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**Thomas W. Jones**, University of Arkansas, received the 2008 SWDSI Outstanding Educator Award. Over the last 30 years, he has been recognized by the

University of Arkansas with the College of Business Distinguished Achievement Award for Teaching (1979), Outstanding Faculty Award for Classroom Instruction (1983), Outstanding Faculty Contributions to Teaching Award (1986), and Outstanding Teacher Award (1988); the

Business Graduate Students Association Outstanding Graduate Faculty Member (1998); and the Student Alumni Board and Associated Student Government Recognition for Excellence in Teaching (2001). In 2006, based upon sustained excellence in teaching as well as exemplary service to the university and his profession, Tom Jones, a DSI Fellow, received perhaps the ultimate faculty recognition at the University of Arkansas when he was appointed as a University Professor.

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