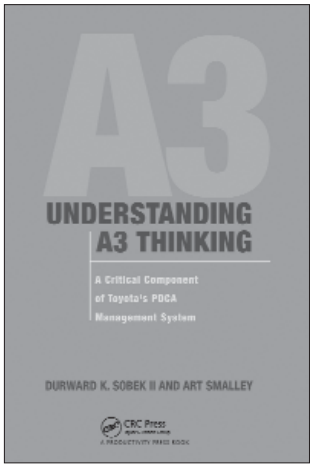

Understanding A3 Thinking: A Critical Component of Toyota's PDCA Management System

By Durward K. Sobek II and Art Smalley

Productivity Press, 270 Madison Avenue, 4th Floor, New York, NY 10016; email Ralph Bernstein at Ralph.Bernstein@taylorandfrancis.com, 2008; 184 pp., $40.

Kaizen, kanban, one-piece flow, quick changeover — there are lots of tools for getting leaner. In their short, readable book, Durward Sobek II and Art Smalley ask, "What are the processes that produce the tools? Why do they exist?" They say the tools developed as countermeasures out of a deeper way of thinking about problem-solving, improvement, and management.

Sobek and Smalley tell readers how Toyota uses a reporting method, the A3 report, as a foundation for managing the company effectively through PDCA (Plan-Do-Check-Act). The title, *Understanding A3 Thinking: A Critical Component of Toyota's PDCA Management System,* tells the story. As Jeffrey Liker says in his foreword, it implies that the reader needs to gain an understanding of something, and one thing the reader needs to understand is that the book isn't about using A3 reports as tools or magic wands. The point is to understand the *thinking* produced by use of the reporting system. Then the reader needs to understand that it is Toyota's *PDCA management system* that is important, with A3 thinking being just one component of it. Furthermore, PDCA is a system for managing and continuously improving an organization. There are many PDCA loops going on at any one time, aligned to achieve Toyota's overall goals.

The authors say that people don't know about the PDCA cycle, or if they do, don't really understand it. (And the authors do the courtesy of correctly crediting Walter Shewhart at Bell Labs for developing PDCA and passing it on to Dr. Deming, who passed it on to people like Taiichi Ohno.) The authors make it clear that, while PDCA is the system, A3 reporting is an effective way of "making PDCA more actionable." The purpose of A3 is to develop good problem solvers, with the belief that human beings thinking and working together can form great systems like Toyota's.

According to the authors, there are seven elements of A3 thinking. It's logical, objective, achieves results the correct way, is concise and visual, aligned vertically and horizontally with the organization, coherently presents problems and proposes countermeasures, and keeps the total system in view while solving a problem within it. Sobek and Smalley offer a practical problem-solving process illustrated by a diagram that makes PDCA more explicit and shows why Toyota spends much time and effort on the "Plan" phase, breaking it up into specific steps. Describing those steps clarified for me what really goes on in planning the PDCA way.

For readers who see the value in the A3 method, and who want to use the book to learn it, the authors repeatedly point out that it takes decades to learn, preferably with a mentor to review the student's reports and add lessons. We get honest stories of how an American trainee, presumably one of the authors, didn't understand a point of Toyota-style thinking, but by communicating with a mentor with the help of an A3 report, were able to gain a deeper understanding of a process. Toyota's lead isn't just because the legendary figures were smart, but because there are thousands of smart people at Toyota, getting smarter all the time. The required decades of learning may mean that Toyota will always have a

long lead, but if it takes that long to really get the juice out of the A3 method, we had better get started.

Visual explanations — charts, graphs, diagrams — are crucial to effective A3 writing. In the book, however, it's not until pages 48-49 in Chapter 3 that we even see what an A3 looks like. Before that happens, the authors verbally describe its importance, elements, and uses, then show an exploded view of the sections and flow of an A3 template. They build up an example, section by section, of a hypothetical A3. I'd rather look at the whole first, and then start looking at the pieces and how they fit together. For others, the building block approach may be just fine.

Why have a standard way of constructing an A3? Problem solving can be intuitive and idiosyncratic, and difficult to explain without a convention for showing what's going on. That's one reason math is shown with common symbols, ways for describing relationships among variables and follows a consistent series of steps to show and guide thinking, not just to get the answer. If the answer is wrong and the steps are shown, the teacher and the student can see what went wrong. The same is true in an A3 report.

An A3 report is both a process and a product. Two chapters on form, style, and support set out a standard work for constructing an A3 report. Advice on de-cluttering text and using charts and graphs to convey important information is a sure antidote to the proverbial "death by PowerPoint" or the 20-page written report. The authors identify ways to simplify writing, investigate the value of templates, and look at the merits and drawbacks of handwritten versus computer-generated reports.

The authors show readers how to get on the road to A3 reporting, with clear explanations and many examples. While they follow a standard layout in the book, the authors say that Toyota will deviate from it if the situation requires. In fact, they are beginning to reduce the reports to one side of an A4 (about 8 1/2 by 11-in.) sheet of paper.

While people typically use A3s for problem-solving, the authors show how they are also used for other purposes, although they caution that beginners should get a lot of practice applying them to problem conditions. Two other types of A3 reports are described by the authors: the proposal A3 report and the status A3 report.

Proposal A3s are written, usually by experienced managers, when significant investment — of money or people — will be required by a change. Proposal A3s involve policy, management practices, and larger organizational processes. They are focused on the Plan phase of PDCA although they deal with the Check and Act phases as well. An example given by the authors is a recommendation to change purchasing policy and process by using a purchasing card rather than a purchase order for expenditures of less than a certain amount. It would reduce the number of transactions and approvals for many purchases, but would require clear rules about what expenditures are acceptable and what are not, what the spending limit will be, and who will be authorized to use the cards. Different scenarios are shown, quantified, and compared in order to come up with a detailed recommendation.

A third type of A3 is used to report on the status of a project as it's going on or as an after-action review. The status A3 describes the results of the implementation of a problem-solving or proposal A3, and fits into the Check and Act phases of PDCA. It makes reporting quick and clear and is ideal for helping higher-level executives see what is going on throughout the company. It involves verifying hypotheses and could show that changes did or did not result in the predicted improvement. It also shows how much progress is being made in implementation and whether it is on schedule or not. If anything is not as planned, mentors and project owners can figure out why, and redirect the project.

The authors didn't talk about how A3s can be linked together vertically and horizontally to facilitate strategy deployment. Although it was probably wise in such a compact book not to get into a deep discussion of that process, it could have been mentioned.

Overall, the book is a timely addition to the resources needed to help many who want to learn from Toyota but who don't have access to Toyota-trained senseis. Those who use the book to deepen their lean thinking will come back to it time after time.

Vocabulary

A3 – A standard metric-unit paper size, with an 11 x 17-in. sheet the closest equivalent in American standard sizes.
PDCA – Plan-Do-Check-Act, shorthand for the application of the scientific method to manufacturing and management problems.
Sensei – A teacher/mentor who guides long-term immersion in a philosophy or realm of knowledge.

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