

# SOUNDVIEW **Featured Book Review**

www.summary.com

## The Art and Science of Innovation

Review by Tom Moore

### THE ELEGANT SOLUTION: TOYOTA'S FORMULA FOR MASTERING INNOVATION

by Matthew E. May

Free Press ©2007 237 pages, \$26.00

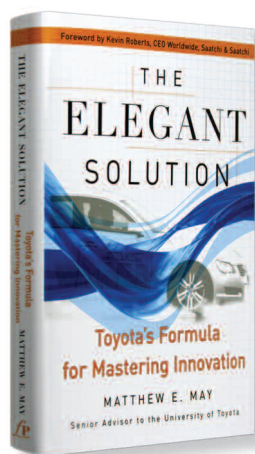
ISBN: 978-0-7432-9017-3

Why have the wheels come off the U.S. automotive industry? Why are foreign manufacturers kicking our collective rear on nearly every measure of performance, product development, manufacturing, quality and profitability? More insidious, how pervasive is this decline? Is the erosion of U.S. automotive clout symptomatic of our business culture as a whole? Can we shake our competitive malaise and recapture our pre-eminence on the world stage?

These questions become increasingly relevant not only to the future competitiveness and prosperity of our economy but to the way we, as individuals, participate in and benefit from that economy. On that latter score, the news has been bleak. Every day, jobs are being restructured, outsourcing establishes new beachheads, unemployment ravages more communities, loyalty and meaning have all but vanished, and compensation erodes. In short, we are asked to do more with less and with fewer rewards — hardly a prescription for a fully engaged workforce or an economic recovery.

As businesses seek to rekindle their value proposition in today's post-industrial world, one competitor contin-

ues to raise the bar. By any measure — customer loyalty, vehicle quality, profit, output volume, best-selling new models, innovation, sustainability — the automaker Toyota defines excellence. Toyota's nearly \$150 billion-plus market value outstrips General Motors, Ford, Daimler-Chrysler, Honda and Volkswagen combined. Toyota makes twice as much money as any other carmaker, even though it enjoys less than a 15 percent market penetration.



How does the company do it? What makes Toyota different? It's the essence of a corporate culture, engineered to encourage individual creativity, according to longtime Toyota business partner Matthew May in his insightful work, *The Elegant Solution*. He should know. He spent many years on the inside of Toyota teaching at Toyota University, and he takes us behind the scenes of Toyota's continuous improvement process. Looking through his lens, we come to better understand not only the cancer that is undermining the performance of many of our institutions but a treatment plan for our recovery.

His prognosis? America, once the economic juggernaut that defined performance, quality, leadership and prosperity, lost its edge when it grew complacent and greedy and stopped looking for new solutions that would better serve its customers. And therein contains the seeds of our recovery.

### “Good Enough” Never Is

For Toyota, innovation is the mastery of thinking within the box. This oxymoronic reality — systems and

---

creativity — helps explain Toyota’s corporate DNA and its record of outstanding performance. The system gives the individual worker purpose, direction and a sense of belonging. That is the safety net that encourages workers at all levels to seek new and better ways of doing things.

But May is skilled enough in his craft to avoid the trap of allowing this impressive story to devolve into stagnant textbook prose or sophomoric cheerleading. To drive his message home and make it more memorable, he punctuates the text liberally with quotes, sidebars, charts, pictures, templates, hansei (reflections) and anecdotes.

None is more riveting or enlightening as the inspirational story of Paul Guitierrez, an autoworker from the former General Motors plant in Fremont, Calif. When Toyota took over the facility in the 1980s, “we went from ‘just do your job’ to ‘no one knows the job better than you,’ ” Guitierrez says. “They teach us how to solve problems. They say, stop the line anytime if something’s wrong. I was floored. That right there changed my life. All of a sudden, I’m looking for ways to fix problems, make improvements, basically get rid of anything that was stupid.”

May’s use of Guitierrez’s story helps to move the focus of the book along and gives the reader an insider’s perspective on the shifts that take place when new management is installed in a business. Takeovers are often viewed as negative and punishing to current employees. The Toyota situation shows that a new owner can bring a great deal of success and give employees hope.

## A Short History of Innovation

While May is an unapologetic Toyota enthusiast (as it turns out, with good reason) none of the principles, practices and protocols he shares are unique to Toyota. In fact, he includes a number of innovative practices from companies such as JetBlue, Starbucks, Clear Rx, Apple Computer and Anthropologie. “The magic is found in Toyota’s remarkable ability to collectively and completely master all of them as a way of life, not a program centered on select teams led by specialists with artificial agendas,” May explains. “That’s what makes Toyota unique and worth studying.”

May begins with the story of Sakichi Toyoda, who, in 1888, watched his mother work on a primitive spinning loom all day, often having to scrap an entire day’s work because of a single broken thread. “I began thinking about ways to power the looms so that weaving could be done faster and more cloth could be made more cheaply,” Toyoda says. “People could then buy cotton goods for less, and that would benefit society substantially.” Some 30 years and numerous minor improvements later, Toyoda perfected the power loom with the

“Toyota implements one million ideas a year. For Toyota, innovation is the mastery of thinking within the box.”

capability to stop the loom automatically whenever a thread broke.

Not only did Sakichi Toyoda find the elegant solution, he found the art and science of continuous improvement that became the lynchpin to Toyoda Automatic Loom Works, the precursor to Toyota Motor Company. This resourceful spirit was absolutely essential in an era of scarcity — land, facilities, money and labor — as he leveraged his employees’ ingenuity, constant improvement and a strong will to serve society to accomplish more with less.

## A Spiritual Quest

May introduces Sakichi Toyoda, not to showcase his inventive prowess but rather to place in context his nearly Zen-like quest to develop a better solution to a real problem. When it comes to solutions, simple is better, according to May. And elegance is better still. Arriving at the ultimate meaning behind the title of his book, May writes, “An elegant solution is one in which the optimal or desired effect is achieved with the least amount of effort.”

What makes this intriguing is that it doesn’t matter whether the focus is a discussion of a new product design, or the engineering of a new technology, or an improvement to a daily operation, the core processes for innovation are the same and can be taught and replicated; all entailing a rigorous search for the optimal solution, all working toward solving the problem of how to do something better.

The truth is that customers are not impressed with features that don’t meet their needs or solve their problems. Innovation is about satisfaction and value, not new gizmos. Therein lie the philosophical underpinnings that guide the quest for elegant solutions:

**Ingenuity in craft.** May urges us to reject self-limiting behaviors, such as blaming corporate bureaucracy or resource constraints for maintaining the status quo. He argues that we should develop our expertise and take pride in our work to overcome complacency by viewing such opposition as “an inventive challenge.”

**Pursuit of perfection.** May debunks the myth of the “thunderbolt breakthrough,” arguing those often serendipitous events are rarely repeatable and often don’t square with a culture of innovation founded on continuous improvements and the systemic pursuit of perfection.

---

**Fit with society.** Remember the old saying that if you build a better mousetrap the world will beat a path to your door? That's not entirely true, according to May, who maintains that without a major rodent infestation, such a mousetrap, no matter how innovative, will not be successful. Establishing this fit requires a clear understanding of your business and your customers.

These are the principles that, to this day, fuel the engine of innovation at Toyota and form the basis of everything Toyota does. Without them, it's too easy for any business to become focused on short-term financial performance. Exhibit one is Toyota's competitors in Detroit.

### What Is Innovation?

In demystifying innovation, May blows the doors off traditional assumptions that innovation is the province of the few, the trained, the elite. "It's NOT sitting around dreaming up earth-shattering ideas behind closed doors, trying to be clever and creative in concocting a new secret sauce that will blow the doors off the competition," he writes. "It is making best use of one's expertise while openly exploring possibility and defining the task at hand. It is a front-line worker exploring, finding and solving an important problem hands-on."

Innovation depends upon how we connect with our work, May notes. The more engaged we are and the more trust we feel, the more creativity will be unleashed. So how do we move to that level of engagement?

May says the first step is to avoid the trap of getting lost in titles and job descriptions, which inhibit us from capturing the meaning of our work. For those struggling to make the connection, May employs "The 5 Why's." He simply starts with a job description and starts peeling to unlock the real purpose or meaning of the job by asking, "Why is that important?" After five such questions, the cause should be revealed. Autoworkers, like Paul Guitierrez, come to see their jobs not as working on an assembly line but as protecting families as they drive.

The flip side of the engagement coin is relentlessly exploring new solutions by asking questions to develop a better understanding of our business and our customers. Suppressing curiosity builds drone-like conformity, the arch-enemy of innovation.

### How Do We Achieve Innovation?

It's one thing to diagnose the problem; it's quite another to convert these philosophies into an actionable recovery plan. May succeeds on both counts. Appropriately, that's where he spends the bulk of his energy — elaborating on how to implement the elegant solution. Although it is a journey without a destination, the path is marked

**"Remember the old saying that if you build a better mousetrap the world will beat a path to your door? That's not entirely true..."**

with some visible, repeatable practices.

May carefully ensures this roadmap applies to individuals and corporations alike. For the individual, there are the tools to buck the bureaucratic inertia that can stifle innovation. And from the business leader's perspective, there are tools to remove the myopic organizational barriers that constrain personal ingenuity and creativity.

As he spells out how to implement innovative practices, May uses a problem, cause and solution format, which helps us understand each of these areas.

**Perpetual learning.** What separates Toyota from other companies is its mastery of perpetual learning driven by the cultivated desire to understand. In order to accomplish those objectives, Toyota employs the process of I.D.E.A. Loops (Investigate by questioning to fully analyze the problem; Design by solving problems and generating solutions; Execute by testing a solution; and Adjust by assessing results and improving the design based on user feedback). Without a systematic learning process, it's difficult to make change relevant.

**Live in your customer's world.** In order to avoid solutions that don't work as predicted, May encourages us to get closer to the customer. Toyota calls it, "genchi benbutsu," the Japanese term for "go and see." The idea is to observe the customer, become the customer and collaborate with the customer to develop a more complete understanding of the customer. For instance, Toyota's product developers working on the Scion attended raves and hip hop parties to understand their youthful target audience. The challenge is to be nimble enough to accept facts that run contrary to our beliefs.

**Think in pictures.** Pictures and images connect people in an emotional way that helps to illuminate the innovative path we need to work. This visualization can take the form of visual dashboards to monitor performance on goals or "obeya" sheets. "Obeya," which means "big room" in Japanese, is the nerve center for any Toyota team project. Output from these sessions is captured on a large tabloid-sized sheet nicknamed an A3 for the international paper size.

**Capture the intangible perceptual and emotional elements.** Too often solutions fail to excite the customer because of a tunnel-vision focus on features as opposed to benefits for the customer. May urges us to

---

capture the intangibles that people truly prize. Therein we'll find the most compelling elements of value. For instance, Lexus doesn't sell luxury transportation, but rather safe sanctuary and quiet escape. Disney doesn't operate theme parks; it sells magic and fantasy. The tangible drivers of value — quality, cost, speed — are merely the price of admission and, in order to compete, it's essential that we get these right. But if we can get to the heart of what enhances the customer experience, we have the opportunity to unleash a torrent of creativity.

**Leverage the limits.** Understand that resource constraints can spur ingenuity. For instance, in 2005, Toyota announced that it was looking for ways to cut in half the \$5,000 difference in price between Toyota's hybrid cars and similar gasoline models, without compromising the current quality or performance. Because it was aligned with Toyota's business model, that arduous and audacious goal, once articulated, became reality.

**Make kaizen mandatory.** May tells us that the number of ideas submitted per employee in Japan is 100 times greater than in U.S. companies, despite the fact that the average reward is 100 times less than in the U.S. "Kaizen," the Japanese word for continuous improvement, caters to the idea of submission of ideas, not acceptance.

**Keep it lean.** Despite the accelerating scope and pace of change, too many businesses invest in structures that impede response time and flexibility. Customization and complexity become intertwined and will ultimately erode whatever value is provided. To combat this tendency, May encourages us to start looking at the world through the eyes of the users and to the front-line employees and relentlessly fight against complexity and "scale it back, make it simple and let it flow."

## Summary

When we think of Toyota, we think cars. Yet May is quite clear that what separates Toyota from the pack is its relentless pursuit of innovation. Toyota refuses to rest

**"Lexus doesn't sell luxury transportation, but rather safe sanctuary and quiet escape. Disney doesn't operate theme parks; it sells magic and fantasy."**

on its laurels. It fights complacency by encouraging ideas from every level of the organization. It's all about incremental improvements, getting a little bit better every day.

*The Elegant Solution* serves as a clarion call for businesses or individuals flailing in the stagnant backwater of uninspirational and un-aspirational mediocrity. But far from a death knell, May's work paints an optimistic view of the future.

"More and more people are beginning to return to the almost forgotten Renaissance era of mastery. They're adopting a different view of their work. In all walks of professional life, from senior executives to factory workers to part-timers, people are beginning to see themselves as business artists and business scientists.

"Great innovation seeks to find and fit the rhythm of change happening around us. At the same time it aims to lead that change by finding a way to do something better than it's ever been done before. Great innovation is a brand of leadership. Elegant solutions meld with society. They help move the world."

There's no time to waste. Toyota is already moving away from the narrow focus on product and service quality because of the perceived creeping of commoditization. According to May, the company has set its sights on creating "compelling customer value, about how to flow that value through streamlined processes and about embedding a real discipline around the pursuit of perfection."

The best never rest. ●

**The author:** Matthew E. May partners as an advisor with corporate leaders to help guide change and drive innovation in their organizations. He is the director of Aevitas, a Los Angeles-based firm that works with teams to instill a strong discipline around constant innovation, using a unique blend of logic and creativity to embed the routines they need to build a balanced portfolio of ideas from the front lines to the boardroom.

For more than eight years, May partnered with the University of Toyota, playing a key role in the organizational learning strategy, design and delivery of core programs for Toyota associates both domestically and internationally.