

Chapter 4

The 14 Principles of the Toyota Way: An Executive Summary of the Culture Behind TPS

Since Toyota's founding we have adhered to the core principle of contributing to society through the practice of manufacturing high-quality products and services. Our business practices and activities based on this core principle created values, beliefs and business methods that over the years have become a source of competitive advantage. These are the managerial values and business methods that are known collectively as the Toyota Way.

—Fujio Cho, President Toyota
(from the Toyota Way document, 2001)

The Toyota Way Is More than Tools and Techniques

So you set up your kanban system. (Kanban is the Japanese word for “card,” “ticket,” or “sign” and is a tool for managing the flow and production of materials in a Toyota-style “pull” production system.) You plug in the andon, which is a visual control device in a production area that alerts workers to defects, equipment abnormalities, or other problems using signals such as lights, audible alarms, etc. Finally, with these devices your workplace looks like a Toyota plant. Yet, over time your workplace reverts to operating like it did before. You call in a Toyota Production System (TPS) expert who shakes her head disapprovingly. What is wrong?

The real work of implementing Lean has just begun. Your workers do not understand the culture behind TPS. They are not contributing to the continuous

improvement of the system or improving themselves. In the Toyota Way, it's the people who bring the system to life: working, communicating, resolving issues, and growing together. From the first look at excellent companies in Japan practicing lean manufacturing, it was clear that the workers were active in making improvement suggestions. But the Toyota Way goes well beyond this; it encourages, supports, and in fact demands employee involvement.

The more I have studied TPS and the Toyota Way, the more I understand that it is a system designed to provide the tools for people to continually improve their work. The Toyota Way means more dependence on people, not less. It is a culture, even more than a set of efficiency and improvement techniques. You depend upon the workers to reduce inventory, identify hidden problems, and fix them. The workers have a sense of urgency, purpose, and teamwork because if they don't fix it there will be an inventory outage. On a daily basis, engineers, skilled workers, quality specialist, vendors, team leaders, and—most importantly—operators are all involved in continuous problem solving and improvement, which over time trains everyone to become better problem solvers.

One lean tool that facilitates this teamwork is called 5S (sort, stabilize, shine, standardize, sustain, discussed in Chapter 13), which is a series of activities for eliminating wastes that contribute to errors, defects, and injuries. In this improvement method, the fifth S, sustain, is arguably the hardest. It's the one that keeps the first four S's going by emphasizing the necessary education, training, and rewards needed to encourage workers to properly maintain and continuously improve operating procedures and the workplace environment. This effort requires a combination of committed management, proper training, and a culture that makes sustaining improvement a habitual behavior from the shop floor to management.

This chapter provides a synopsis of the 14 principles that constitute the Toyota Way. The principles are organized in four broad categories: 1) Long-Term Philosophy, 2) The Right Process Will Produce the Right Results (this utilizes many of the TPS tools), 3) Add Value to the Organization by Developing Your People, and 4) Continuously Solving Root Problems Drives Organizational Learning. Note that Part II of this book is also organized into these same four categories—the four “P's” of the Toyota Way model in Chapter 1. In the following two chapters, I will demonstrate some of these 14 principles at work in the development of Lexus and Prius. If you would like to jump ahead to begin the detailed discussion of these 14 principles, you can skip to Chapter 7 now. However, I do advise that you peruse the principles below.

Executive Summary of the 14 Toyota Way Principles

Section I: Long-Term Philosophy

Principle 1. Base your management decisions on a long-term philosophy, even at the expense of short-term financial goals.

- Have a philosophical sense of purpose that supersedes any short-term decision making. Work, grow, and align the whole organization toward a common purpose that is bigger than making money. Understand your place in the history of the company and work to bring the company to the next level. Your philosophical mission is the foundation for all the other principles.
- Generate value for the customer, society, and the economy—it is your starting point. Evaluate every function in the company in terms of its ability to achieve this.
- Be responsible. Strive to decide your own fate. Act with self-reliance and trust in your own abilities. Accept responsibility for your conduct and maintain and improve the skills that enable you to produce added value.

Section II: The Right Process Will Produce the Right Results

Principle 2. Create a continuous process flow to bring problems to the surface.

- Redesign work processes to achieve high value-added, continuous flow. Strive to cut back to zero the amount of time that any work project is sitting idle or waiting for someone to work on it.
- Create flow to move material and information fast as well as to link processes and people together so that problems surface right away.
- Make flow evident throughout your organizational culture. It is the key to a true continuous improvement process and to developing people.

Principle 3. Use “pull” systems to avoid overproduction.

- Provide your downline customers in the production process with what they want, when they want it, and in the amount they want. Material replenishment initiated by consumption is the basic principle of just-in-time.
- Minimize your work in process and warehousing of inventory by stocking small amounts of each product and frequently restocking based on what the customer actually takes away.
- Be responsive to the day-by-day shifts in customer demand rather than relying on computer schedules and systems to track wasteful inventory.

Principle 4. Level out the workload (heijunka). (Work like the tortoise, not the hare.)

- Eliminating waste is just one-third of the equation for making lean successful. Eliminating overburden to people and equipment and eliminating unevenness in the production schedule are just as important—yet generally not understood at companies attempting to implement lean principles.
- Work to level out the workload of all manufacturing and service processes as an alternative to the stop/start approach of working on projects in batches that is typical at most companies.

Principle 5. Build a culture of stopping to fix problems, to get quality right the first time.

- Quality for the customer drives your value proposition.
- Use all the modern quality assurance methods available.
- Build into your equipment the capability of detecting problems and stopping itself. Develop a visual system to alert team or project leaders that a machine or process needs assistance. *Jidoka* (machines with human intelligence) is the foundation for “building in” quality.
- Build into your organization support systems to quickly solve problems and put in place countermeasures.
- Build into your culture the philosophy of stopping or slowing down to get quality right the first time to enhance productivity in the long run.

Principle 6. Standardized tasks and processes are the foundation for continuous improvement and employee empowerment.

- Use stable, repeatable methods everywhere to maintain the predictability, regular timing, and regular output of your processes. It is the foundation for flow and pull.
- Capture the accumulated learning about a process up to a point in time by standardizing today’s best practices. Allow creative and individual expression to improve upon the standard; then incorporate it into the new standard so that when a person moves on you can hand off the learning to the next person.

Principle 7. Use visual control so no problems are hidden.

- Use simple visual indicators to help people determine immediately whether they are in a standard condition or deviating from it.
- Avoid using a computer screen when it moves the worker’s focus away from the workplace.
- Design simple visual systems at the place where the work is done, to support flow and pull.
- Reduce your reports to one piece of paper whenever possible, even for your most important financial decisions.

Principle 8. Use only reliable, thoroughly tested technology that serves your people and processes.

- Use technology to support people, not to replace people. Often it is best to work out a process manually before adding technology to support the process.
- New technology is often unreliable and difficult to standardize and therefore endangers “flow.” A proven process that works generally takes precedence over new and untested technology.
- Conduct actual tests before adopting new technology in business processes, manufacturing systems, or products.
- Reject or modify technologies that conflict with your culture or that might disrupt stability, reliability, and predictability.
- Nevertheless, encourage your people to consider new technologies when looking into new approaches to work. Quickly implement a thoroughly considered technology if it has been proven in trials and it can improve flow in your processes.

Section III: Add Value to the Organization by Developing Your People**Principle 9. Grow leaders who thoroughly understand the work, live the philosophy, and teach it to others.**

- Grow leaders from within, rather than buying them from outside the organization.
- Do not view the leader’s job as simply accomplishing tasks and having good people skills. Leaders must be role models of the company’s philosophy and way of doing business.
- A good leader must understand the daily work in great detail so he or she can be the best teacher of your company’s philosophy.

Principle 10. Develop exceptional people and teams who follow your company’s philosophy.

- Create a strong, stable culture in which company values and beliefs are widely shared and lived out over a period of many years.
- Train exceptional individuals and teams to work within the corporate philosophy to achieve exceptional results. Work very hard to reinforce the culture continually.
- Use cross-functional teams to improve quality and productivity and enhance flow by solving difficult technical problems. Empowerment occurs when people use the company’s tools to improve the company.
- Make an ongoing effort to teach individuals how to work together as teams toward common goals. Teamwork is something that has to be learned.

Principle 11. Respect your extended network of partners and suppliers by challenging them and helping them improve.

- Have respect for your partners and suppliers and treat them as an extension of your business.
- Challenge your outside business partners to grow and develop. It shows that you value them. Set challenging targets and assist your partners in achieving them.

Section IV: Continuously Solving Root Problems Drives Organizational Learning

Principle 12. Go and see for yourself to thoroughly understand the situation (*genchi genbutsu*).

- Solve problems and improve processes by going to the source and personally observing and verifying data rather than theorizing on the basis of what other people or the computer screen tell you.
- Think and speak based on personally verified data.
- Even high-level managers and executives should go and see things for themselves, so they will have more than a superficial understanding of the situation.

Principle 13. Make decisions slowly by consensus, thoroughly considering all options; implement decisions rapidly (*nemawashi*).

- Do not pick a single direction and go down that one path until you have thoroughly considered alternatives. When you have picked, move quickly and continuously down the path.
- *Nemawashi* is the process of discussing problems and potential solutions with all of those affected, to collect their ideas and get agreement on a path forward. This consensus process, though time-consuming, helps broaden the search for solutions, and once a decision is made, the stage is set for rapid implementation.

Principle 14. Become a learning organization through relentless reflection (*hansei*) and continuous improvement (*kaizen*).

- Once you have established a stable process, use continuous improvement tools to determine the root cause of inefficiencies and apply effective countermeasures.
- Design processes that require almost no inventory. This will make wasted time and resources visible for all to see. Once waste is exposed, have employees use a continuous improvement process (*kaizen*) to eliminate it.
- Protect the organizational knowledge base by developing stable personnel, slow promotion, and very careful succession systems.

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- Use *hansei* (reflection) at key milestones and after you finish a project to openly identify all the shortcomings of the project. Develop countermeasures to avoid the same mistakes again.
- Learn by standardizing the best practices, rather than reinventing the wheel with each new project and each new manager.

It is quite possible to use a variety of TPS tools and still be following only a select few of the Toyota Way principles. The result will be short-term jumps on performance measures that are not sustainable. On the other hand, an organization that truly practices the full set of Toyota Way principles will be following TPS and on its way to a sustainable competitive advantage.

In courses I have taught on lean manufacturing, a common question is “How does TPS apply to my business? We do not make high-volume cars; we make low-volume, specialized products” or “We are a professional service organization, so TPS does not apply to us.” This line of thinking tells me they are missing the point. Lean is not about imitating the tools used by Toyota in a particular manufacturing process. Lean is about developing principles that are right for your organization and diligently practicing them to achieve high performance that continues to add value to customers and society. This, of course, means being competitive and profitable. Toyota’s principles are a great starting point. And Toyota practices these principles far beyond its high-volume assembly lines. For example, we will see in the next chapter how some of these principles are applied in the professional service organizations that design Toyota’s products.