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Toyota's 14 Steps to Becoming Lean



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Setpoint provides industrial automation equipment customized for specific manufacturing processes.

Toyota's 14 Steps to Becoming Lean

From its humble beginnings in the textile industry, Toyota has grown to be one of the world's most powerful and efficient companies. The keys to their success lie in the management philosophies that are collectively known as the "Toyota Way." The Toyota Way is a corporate culture that focuses on building a learning organization. It is an organization that is able to examine the value that it is providing to its customers and maximize that value by consistently improving upon its standards.

The Toyota Way has 14 basic principles that can be used to find new ways of becoming lean. The universal nature of these principles enables them to be used at companies across industries. These principles are the building blocks of Toyota. They made Toyota successful and drive how Toyota makes decisions everyday. Dr. Jeffrey K. Liker wrote a book called "The Toyota Way" that groups the 14 basic principles of the Toyota Way into 4 categories: Philosophy, Process, People & Partners, and Problem Solving.

Philosophy

Only one principle in the Toyota Way deals with philosophy, but it is one of the most important. This overarching philosophy holds the rest of the principles together.

Principle 1: Base your Management Decisions on a Long-Term Philosophy, Even at the Expense of Short-Term Financial Goals

Toyota has a long-term goal of providing value for customers, society, and the economy. The founder of the Toyota Motor Company, Kiichiro Toyoda, believed that in order to be successful in the long term in Japan, they needed a

mass production system that was different from the way Ford was working, a system tailored to the Japanese market.

While other Japanese companies were content to buy kits from U.S. car makers and assemble knockoffs of their vehicles, Toyota believed they had to start from the beginning and develop a strong foundation for the future. This belief led Kiichiro to research many aspects of car production, from the basics of casting and stamping to engine design and production. Toyota continues to research new technologies today, including the ongoing development of electrical technology for the Prius Hybrid. These decisions may not have shown a great profit initially, but they have been hugely successful in the long run.

So, how does Toyota put this long-term philosophy into practice? Through the belief that “the right process will produce the right result.”

Process

Toyota's main goal is to provide value, and they do this by eliminating waste. They define waste as anything that is not adding value to the product. Toyota has identified seven major types of non-value adding wastes:

The Seven Wastes (plus 1)

1. Overproduction
2. Waiting
3. Unnecessary transport
4. Over-processing or incorrect processing
5. Excess inventory
6. Unnecessary movement
7. Defects
8. Unused employee creativity (included by Dr. Liker)

Toyota seeks to eliminate these wastes by implementing standards. Principles 2 through 8 all have to do with having proper standards. Waiting can be eliminated by a standard flow of material and information to the work cell,

through the work cell, and out of the work cell. There is a standard method to begin producing product. Standardized tasks for the work done in the cell lowers unnecessary movement. There is a standard way to detect defects and a standard way to stop the cell when defects are discovered. The principles grouped together under the Process umbrella all work to eliminate these seven wastes.

Principle 2: Create Continuous Process Flow to Bring Problems to the Surface

Continuous process flow is when a product or information moves through a process seamlessly. This may require updating the way work is done to create a stream of product or information that is available right when it is needed. This continuous process flow is designed to highlight any problems that require immediate resolution. A sense of urgency is created by eliminating buffers of inventory, because problems quickly shut down the process.

Principle 3: Use "Pull" Systems to Avoid Overproduction

Toyota believes that a product should be replenished as it is used. The inspiration for the "pull" system came from the supermarket where products are placed back on the shelf many times a day as they are used. In a manufacturing environment, the ideal situation would be to build the product precisely when it is required to eliminate inventory. This is not always practical, but overproduction can be avoided by taking a few steps. First, minimize buffers between processes. Second, use kanban to pull the product from the previous operations. Kanban is simply a signal from a downstream process to an upstream process to begin producing parts.

Principle 4: Level Out the Workload

A level workload helps to stabilize the process. Rather than working overtime on Monday and sending employees home early on Tuesday, leveling out the workload sets a consistent pace. This benefits Toyota's suppliers by providing them a stable and level set of orders, it benefits Toyota because they receive parts just in time for the parts to be used, and it benefits Toyota's customers by shortening lead times and improving quality.

Principle 5: Build a Culture of Stopping to Fix Problems to Get Quality Right the First Time

It is much easier and cheaper in the long run to stop and fix the root of the problem rather than working around bad parts. Toyota gives each employee the ability to stop the line when a problem is discovered. This turns the entire product development and manufacturing process into a quality inspection.

Principle 6: Standardized Tasks Are the Foundation for Continuous Improvement and Employee Empowerment

Without a standard method, each process has a random chance of success. Individual employees might accidentally make mistakes, while others might accidentally make good decisions. Standardized tasks represent the best process known today. Standardized tasks are revised and updated as better methods are discovered.

Principle 7: Use Visual Control so No Problems Are Hidden

If basic principle 5 turns each employee into a quality inspector, then all employees need simple visual indicators to determine immediately whether they are in a standard condition or if they are deviating from it. This could be any communication device used in the work environment that tells at a glance how work should be done and if it is currently being done properly.

Principle 8: Use Only Reliable, Thoroughly Tested Technology That Serves Your People and Processes

Unproven technology has the potential to disrupt the flow. Any new technology must be thoroughly tested and evaluated to ensure that it supports your culture before it is adopted.

These standards focus on providing tools for people to continuously improve their work. To maintain and improve upon these standards, Toyota focuses a great deal of effort into selecting and supporting their employees and business partners.

People & Partners

According to Dr. Liker, the Toyota Company has a family feel to it. Toyota is cautious about whom it lets into the family, but once they are accepted, Toyota is very committed to helping them learn and grow. Toyota deals with internal employees and external suppliers in this same way. This is not to say that the company will tolerate problems, but Toyota is very willing to help solve problems because it benefits both sides. By growing and teaching its suppliers, Toyota solidifies its foundations and builds a stronger organization.

Principle 9: Grow Leaders Who Thoroughly Understand the Work, Live the Philosophy, and Teach It to Others

The best leaders lead by example. This requires an understanding of the daily work and a commitment to the long-term company philosophy. Toyota prefers to promote from within by using a rigorous hiring process to select the best candidate, challenging them with difficult—but mentor assisted—assignments and rewarding their successes. Toyota will often take years to develop its leaders before it allows them to take on a critical position.

Principle 10: Develop Exceptional People and Teams Who Follow Your Company's Philosophy

Toyota has a habit of hiring many of their employees straight out of school. This is helpful because the employee does not have to unlearn any habits or philosophies that they learned from other companies that are contrary to Toyota's processes. Toyota takes a long time deciding on the right employee, but once hired, employees are almost guaranteed employment for life. This employment is usually guided by a mentor to ensure a consistency of dedication.

Principle 11: Respect Your Extended Network of Partners and Suppliers by Challenging Them and Helping Them Improve

Toyota thinks of its suppliers as extensions of its own business. Toyota helps them to grow and develop by setting challenging goals and assisting them

for mutual benefit. Toyota often dual-sources parts from competing suppliers. This helps to keep the suppliers motivated to improve and reduce cost. Toyota is willing to help their partners rise to Toyota's high standards.

Toyota depends upon its suppliers. These suppliers have the ability to quickly shut down production at Toyota if there is a problem. That's why Toyota works very hard to make sure its suppliers can consistently perform and that any problems are solved quickly and efficiently.

Problem Solving

The Toyota Way is simply a method to keep getting better at whatever you are doing. In addition to standardizing processes, the Toyota Way has methods to deal with problems that arise. The last three principles identified by Dr. Liker allow Toyota to build on their successes and prevent repeating the same mistakes.

Principle 12: Go and See for Yourself to Thoroughly Understand the Situation

Genchi genbutsu is a Japanese term that means "go and see for yourself." Toyota believes that the decision makers of a company must go to the source and personally observe what is happening. This allows them to think and speak on personally verified data. By verifying the facts themselves, the decision makers have more than a superficial understanding of the situation and will be better equipped to suggest solutions and improvements.

Principle 13: Make Decisions Slowly by Consensus, Thoroughly Considering All Options; Implement Decisions Rapidly

Group consensus is very important to Toyota. Before making decisions, the manager in charge will visit those affected by the decision and discuss the problem and its potential solutions. By including all parties and coming to a consensus on the decision, Toyota can rapidly implement solutions. Toyota also makes a point of using cross-functional teams to solve its technical problems. This brings together people from each group affected by the decision so that a

solution can be arrived at quickly and efficiently.

Principle 14: Become a Learning Organization through Relentless Reflection and Continuous Improvement

The ultimate goal of the Toyota Way is to become a learning organization in which the best process is the standard and each employee is looking for ways to improve the standard. Each project is better than the last because the successes of the previous projects are repeated and built upon, and the mistakes of the past are avoided. Toyota is able to reflect upon both its successes and its failures and translate those experiences into guidelines and countermeasures to ensure a better future.

Conclusion:

By following these principles, Toyota has successfully eliminated the waste from many areas of their company. Their ultimate goal is improvement, which is a great goal for any company. Set standards and acknowledge what is good and bad in your processes. Take the good processes and use them as best practices. Take the bad ones and fix them—don't repeat your mistakes. Each time you go through this process it builds upon what you learned the last time. Becoming lean is a long-term commitment that, once made, makes this process easier.

THINK: You can improve your company and become more productive if you work through the 14 principles.

FEEL: You have the ability to make your business better and produce a higher quality product.

DO: Try it! Start small and grow from there. Standardize one job or one department. It works at any level of the process.

Setpoint is the leader in lean automation equipment from concept to functioning completion. Following the Toyota Production System, Setpoint has successfully created custom solutions for a broad variety of industries for over 18 years.