

Toyota Organization Change Management Principles

Alfred Chen Professor, Kun Shan University, Taiwan

Chen-Yuan Kao Ph.D. Graduate Student, National Cheng Kung University, Taiwan

*Wen-Cheng Wang Lecturer, Hwa Hsia Institute of Technology, Taiwan

ABSTRACT

In 1990, after MIT finished the “**International Research Project of car**”, Dr. James P. Womack wrote the book- “**The Machine That Changed the World**”. The book complimented TOYOTA about created a new concept - “**Lean Thinking**”. Because of decrease unnecessary cost and process, the works will be more cost-effective, combines the talents, and pursues the goal of refine until perfect. It not only hopes to decrease the resource, cost, and time of half before, but also manufactures cars of High quality at the same time.

When “**TPS**” (TOYOTA Production System) is fashion around the world, the principal of TOYOTA-Katsuaki Watanabe, proffer a new management destination of “**Green, Save, and Education**”. It also provides a concept - “**Healthy Appliance**” that about the cars of economy, low pollution, and makes users healthily. TOYOTA has established for 70 years. It establishes the “**Standard**” and “**model**” again of the world’s management transference, just TOYOTA be commended “**The World's Most Admired Companies**” by FORTUNE. At the same time, TOYOTA has to change “**The Machine of Change World**” to “**Animate World’s Mechanism**”.

TOYOTA INTRODUCE

TOYOTA used to be a weave factory before transfer and advance for decades. It advances to a TOYOTA organization that has more than 14 subsidiaries. TOYOTA has car factories in U.S. and Canada, and its official website that could sell to the entire world. TOYOTA is one of the most famous brands in the world. Its profit is double than the amount of General Motor’s and Ford’s (TOYOTA, 2008). TOYOTA has developed more than 50 forms of car, and become a huge TOYOTA system. Until 2007, the sell number of Toyota’s (9497 thousand) have more than GM’s (9826 thousand), and become the best car factory around the world (Sinchew-I financial news, 2008).

Besides, Toyota’s success and management become the example for new enterprise, even use the word “**TPS**” (TOYOTA Production System) to discuss it (Fan, Kim, 2007). TOYOTA also focus on environment protect, advances the new technology, follows the green product, and active to promote 3R (Reduce, Recycle, Reuse) concept (Nicky Scott, 2004). For example, TOYOTA develops the alcohol car for environment project latterly, and that made the technology and environment project could design or produce at the same time- an ideal product. TOYOTA also adds the “**Hybrid**” concept into the new form of the car that includes the new concepts - “**Zeronize**” and “**Maximize**”. It is the first one who uses the concept about “business continuity” into the car (TOYOTA, 2007).

TOYOTA DEVELOP

In 2003, Business Week announces the best managers of the world. TOYOTA’s manager - Fujio Cho is one of the best managers in that time, because he made TOYOTA’s profit more than 8.74 billion. Fujio Cho considered: If Japan want to advance forward that breakthrough the traditional hedge on manufactory, service industry, and government. Altogether, change the old management and use the TOYOTA’s product management

(TPS) is the best way (Business Week, 2003). The “TPS” House was developed by Taiichi Ohno and Eiji Toyoda to make it possible to explain Toyota’s evolving system to employees and suppliers (Figure 1). The aim of TPS is to eliminate all muri, mura, muda (overburden, unevenness, waste) from the operations. It is a system that uses the PDCA approach to involve everyone in solving problems and improving quality, cost, delivery, safety, and morale.

Beginning in machining operation and spreading from there, Ohno led the development of TPS at Toyota throughout the 1950’s and 1960’s and the dissemination to the supply base through the 1960’s and 1970’s. The “TPS” has come to include a great number of different concepts and methodologies. As different companies will find it useful to utilize different strategies for the implementation of TPS a brief list and definition of common terms is listed below:

- **Just In Time (JIT):** “JIT” is an inventory strategy that a company may chose to implement in order to improve the return on investment of a business by reducing inventory and the costs associated with carrying unsold goods.
- **Jidoka (Autonomation):** Jidoka is a Japanese word that refers to the process of creating an automated production line that also includes a human touch. Machines perform with Autonomation when they are programmed to stop producing in the case of an error. It is then the human who identifies and resolves the problem.
- **Kaizen (Continuous Improvement):** This Japanese term refers to the process of gradual change for the better. Employees are encouraged to provide input and improve the processes that they are over thereby making their jobs more enjoyable and the production line more efficient.
- **Andon:** This term refers to a method used in visual control and when translated into English means “Signboard.” Visual control is a process that uses visual cues such as graphics to constantly illustrate to workers just how the production process and work environment should flow.
- **Pokayoke:** The process of fool-proofing or mistake-proofing a system by identifying the cause of defects or errors and putting a plan in place to prevent such inadvertent errors from occurring again.
- **Muda:** The term muda is often accompanied with a list of seven different wastes or “deadly wastes” that a company looking to implement lean manufacturing techniques is trying to eliminate. (The terms “Muri” and “Mura” refer respectively to the overburden and unevenness that accompanies the carrying of the unnecessary wastes).

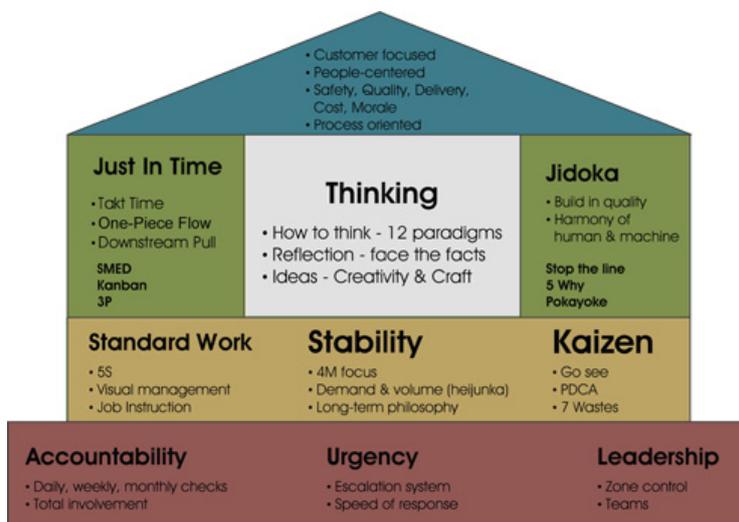


Figure 1: Toyota Production System House

Fujio. C said: 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. C, 2001).

TOYOTA MANAGEMENT CHANGE

Concept of "**JIT**" (just in time) is be create when TOYOTA just a weave factory. It is also the oldest and first way by TOYOTA and still uses it now. The purpose of JIT is to reduce the cost, and promoted the benefit of product. It could divide to 7 points: the extravagance on overproduction, time of wait, handling (work place collocate absurdly), artifact (use the bad technology), backlog, action (the action had no productivity), and bad production (Liker & Jeffrey, 2003). According to the basic principle - "**Benefit = (Price - Cost) × Account**", TOYOTA's plan do the low cost. On next way, TOYOTA advanced benefit and account of product.

After foundation on JIT way, TOYOTA add automation concept into the management that cause it to be success. Soon, other enterprises wanted to learn TOYOTA's way, and TOYOTA way is also the most important change in TOYOTA's management. The "**TPS**" became a philosophy of production management. Jeffrey analysed "**TPS**" for 20 years, and arranges 14 management principles from TPS (Jeffrey K. Liker, 2004):

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.

Principle 2. Create 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 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.

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 assists your partners in achieving them.

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 but cautiously 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.
- 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.

Ohno considered the fundamental waste to be overproduction, since it causes most of the other wastes. Producing more than the customer wants by any operation in the manufacturing process necessarily leads to a build-up of inventory somewhere downstream: the material is just sitting around waiting to be processed in the next operation. Mass or larger-batch manufacturers might ask, “**What’s the problem with this, as long as people and equipment are producing parts?**” The problem is that big buffers (inventory between processes) lead to other suboptimal behavior, like reducing your motivation to continuously improve your operations. Why worry about preventive maintenance on equipment when shutdowns do not immediately affect final assembly anyway? Why get overly concerned about a few quality errors when you can just toss out defective parts? Because by the time a defective piece works its way to the later operation where an operator tries to assemble that piece, there may be weeks of bad parts in process and sitting in buffers (James P, Daniel T, 1996).

There were some other statistics from Consumer Reports’ 2003 annual auto issue (Consumer Reports of TOYOTA, 2003):

- a. In the small car category (Toyota Corolla, Ford Focus/Escort, GM Cavalier, and Chrysler Neon), Toyota won each of the last three years for overall reliability, as well as the prior three years, and predicted reliability for the 2003 model year.
- b. For family sedans, the Toyota Camry beat out the Ford Taurus, the GM Malibu, and Dodge Intrepid, winning in the last three years, the three prior years, and predicted reliability for the 2003 model year.
- c. More than half of all Toyota used cars are singled out as “**recommended for purchase,**” compared with less than 10 percent of the Fords, 5 percent of the GMs, and none of the Chryslers.
- d. Toyota/Lexus has also dominated the J.D. Powers “**initial quality**” and long-term durability rankings for years. Toyota’s Lexus was again the #1 most reliable car, according to the J.D. Powers 2003 quality survey, followed by Porsche, BMW, and Honda.

In addition, Fujitsu has established the following three points as its manufacturing policy (Yuichi. S, Toshihiko. S, Tomohiko. M, 2006).

- a. Customer-focused.
 - Product manufacturing that provides value to the customer.
- b. The importance of customer values.
 - Needs (functions, performance, ease of use), quality, delivery (Time To Market), price.
- c. High value-added manufacturing that utilizes Fujitsu’s strengths.
 - Providing products with the high reliability that was cultivated in the development of core products.
 - Providing products with the speed and cost priorities that were cultivated in the development of PCs

and mobile phones.

TOYOTA executives also considered the early 1990s to be a very dangerous business climate for Toyota. The problem was that Toyota was too successful. It was the peak of the Japanese bubble economy and prosperity seemed like it would never end in Japan. Toyota's business was booming. This is exactly the environment that leads many companies into complacency. But the biggest crisis, from the perspective of Toyota leaders, is when associates do not believe there is a crisis or do not feel the urgency to continuously improve the way they work (Hideshi. I, 1999).

Maybe TOYOTA management should be younger and open mind. Some of its ways are too traditional. Perhaps follow the experience before, like the "JIT", "TOYOTA WAY", "TPS", and Automatic. So, change TOYOTA's management by follow the stream is the most important thing to TOYOTA. I also trust TOYOTA will be the best one in the future.

CONCLUSION

Although TOYOTA had become the biggest cars factory, but it's "TPS" was failed in F1 game. Since 2002, TOYOTA began to attend F1 game, and hope the achievement will be great. Unfortunately, TOYOTA never got a good place for five years (until 2007). According to this example, "TOYOTA Way" maybe could win the business by reduce the cost, but F1 needs to research the newest technology and the best racing car. So TPS maybe should change its way in F1 game, or stop the investment immediately.

Latterly, the BRIC (include Brazil, Russia, India, China) market develop. Establish the factory in BRIC that is the stream in the future. So, the "TPS" principle of 6: "**Standardized tasks are the foundation for continuous improvement and employee empowerment**" will be challenged at the same time. Final, if TOYOTA wants to win all of the part, it has to do its principle 14: "**Become a learning organization through relentless reflection and continuous improvement**" more actually and broad.

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