

The Toyota Production System (TPS) guides the design, manufacture and delivery of Toyota's products by maximizing labor productivity, business efficiency and by minimizing waste. Whilst within Toyota the term "Lean" is not used as a label to describe how the business operates, "Lean" and "Just-in-Time" manufacturing are terms that describe what Toyota do. These methods and ideas were originally developed as a manufacturing philosophy, however they are now being applied to almost every industry and type of operation.

The two key ideas that underpin the "Toyota way" of management are *Jidoka* (automation with a human touch) and *Just-in-time*, though the system has as many as 13 philosophies behind it. TPS was originally developed back in the latter half of the 20th century and has since seen continuous improvements delivering those that use it, greater speed to market and greater efficiency.

Wondering what makes the Toyota Production System so efficient? It's the 13 pillars that every person involved in organizations business processes abide by. We've provided some more explanation, so you can implement [lean changes in your own production processes](#). While some principles are specific to Toyota, others are relevant across all modern organizations. We'll talk about the ideas you can apply to your own business.

Jidoka

The Jidoka concept should be adopted to quickly spot and correct any problems that arise. It's translated to "automation with a human touch" because machines should be able to spot the error and safely pause production, so humans can then inspect and amend the issue. Interestingly, at the moment there is a trend to move towards full, "lights out", manufacturing where humans are completely removed from production. Toyota is resisting this trend and continues to see the value of combining the best aspects of automation with the best use of human intellect and problem solving abilities.

Just-in-Time

A lean workplace only makes what is needed, when it's needed. This is to reduce waste and keep production at an even flow. New jobs or stock should only be delivered when the current inventory is almost used up, to save on space and avoid disruption

Just-in-time uses a pull, not push, system to bring the quantities of items needed for each phase of the production process. This way, cars can be built efficiently and without wasting money. Non manufacturing processes including administrative and service based processes, experience the same benefits in time and money savings, by applying Just-in-time principles.

Poka-Yoke

Translated simply, poka-yoke means *avoid mistakes*. The TPS employs automatic devices that can stop the system if something goes wrong, to resolve the error before it escalates and leads to large quantities of wastage.

Hansei

Hansei describes the process of learning from your mistakes. Recognising where things go wrong is essential to avoid it happening again. Toyota regularly holds hansei meetings to get the business team together and reflect on mistakes, to put preventative plans in place for the future. Problems and mistakes are embraced... so long as you learn from them.

Heijunka

Heijunka is designed to keep the production process as smooth as possible. It means having just enough parts to build a specific number of products (or cars, in Toyota's case). It solves problems that can arise when numerous batches are sent down the assembly line at once, so workers don't have to manage different levels of requirements for different batches.

Kaizen

Kaizen is the Japanese word for continuous improvement, and is at the heart of lean manufacturing and the Toyota Production System. It empowers every individual in the workplace to speak up and make a change where they see room for improvement. Rather than setting aside quarterly production assessment meetings, Kaizen demands small but ongoing improvements.

Genchi Genbutsu

This directly translates as "Actual place, Actual thing". This expressed the idea that managers should be present in the place when the work is occurring, looking at the actual parts being produced. Managers should not delegate their understanding of what is actually going on, if they want to know how to truly make improvements. Being separated from the manufacturing team stops leaders from seeing problems for themselves, making them unable to come up with the best solution.

Nemawashi

Decisions and information in the TPS are openly shared with all employees. This is the idea that, for large decisions that will directly affect a number of different stakeholders, then those people should genuinely be involved in decision-making processes. Pushing through changes without consultation is a recipe for wasted effort, sub optimal solutions, and a reduced likelihood of success.

Muda, Muri, Mura

Muda, Muri and Mura all describe different forms of waste.

Muda means simply waste, or activities that don't add value for the customer.

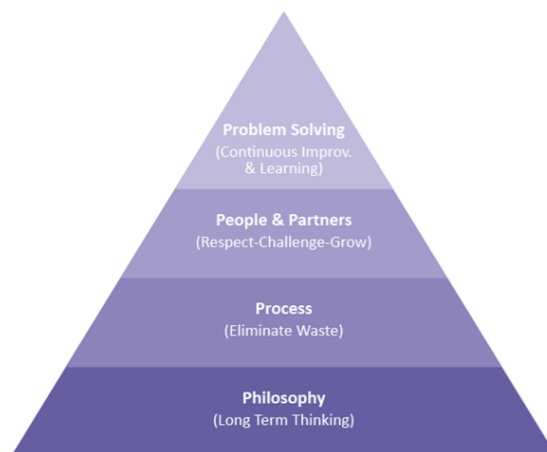
Muda is divided up into 9 categories: over-processing, overproduction, waiting, motion, inventory, transportation, defects, space and wasted human potential.

Muri describes a process that is overburdened and can't keep up. TPS eliminates this to ensure consistent and reliable performance. Teams and customers are happier when work levels are reasonable and consistently achieved.

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