

Purpose: This guide is a concise introduction to the four core lenses of the Toyota Production System (TPS) and Lean management — waste, flow, constraints, and structured problem-solving. It is designed to help operators, supervisors, and leaders start "seeing" their processes differently before or during a Lean transformation.

1 SEE WASTE Identify non-value-added activity	2 SEE FLOW Move material & information smoothly	3 SEE CONSTRAINTS Find & exploit the bottleneck	4 SEE PROBLEMS Solve them at the root cause
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1 Seeing Waste (Muda)

The foundation of Lean thinking

In TPS, **waste** is any activity that consumes resources but creates no value for the customer. Taiichi Ohno originally identified seven forms of waste on the shop floor; a widely used eighth — unused human potential — was added later. Together they form the acronym **DOWNTIME**.

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| <p>D Defects — rework, scrap, and inspection driven by errors.</p> <p>O Overproduction — making more, sooner, or faster than the customer needs.</p> <p>W Waiting — idle time for people, machines, or material.</p> <p>N Non-Utilized Talent — underused operator skills, ideas, and judgment.</p> | <p>T Transportation — unnecessary movement of material or product.</p> <p>I Inventory — excess raw material, WIP, or finished goods.</p> <p>M Motion — unnecessary movement of people or equipment.</p> <p>E Extra Processing — doing more work than the customer requires or values.</p> |
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How to practice it: Walk the process and ask, for each step, "Would the customer pay for this if they could see it happening?" If not, it is a candidate for elimination or reduction.

2 Seeing Flow

Moving value without interruption

Flow means work moves continuously from one value-added step to the next, without stopping, batching, or backtracking. The goal is to shrink the gap between "raw material in" and "finished product out" — lead time — by removing the interruptions that force material to sit and wait.

Batch & Queue (Push)	Continuous Flow (Pull)
Large lot sizes moved between disconnected departments	Small lot sizes (ideally one-piece) moved between connected cells
Production scheduled from a forecast, independent of downstream demand	Production triggered by actual downstream consumption (Kanban/pull signal)
High WIP, long lead time, hidden quality problems	Low WIP, short lead time, defects surface immediately

How to practice it: Map the current path of a single part (a "spaghetti diagram" or value stream map). Every stop, queue, or transport step is an opportunity to connect the process closer to one-piece flow and pull.

3 Seeing Constraints

The system moves at the speed of its bottleneck

Every process has a **constraint** — the single step that limits the throughput of the entire system. The Theory of Constraints (TOC), which pairs naturally with TPS, holds that improving any step other than the constraint produces little or no system-wide gain. Find it, protect it, and elevate it before spreading effort elsewhere.

- 1 **Identify** the constraint — the operation with the longest queue in front of it, or the lowest effective capacity relative to demand.
- 2 **Exploit** the constraint — eliminate downtime, changeovers, and defects at that step so none of its capacity is wasted.
- 3 **Subordinate** everything else — pace upstream and downstream steps to the constraint's rhythm rather than running them at full speed.
- 4 **Elevate** the constraint — add capacity (people, equipment, shifts) only after exploitation is exhausted.
- 5 **Repeat** — once resolved, a new constraint will emerge elsewhere; return to Step 1.

How to practice it: Stand at the point in the line with the biggest pile of WIP in front of it. That is almost always your constraint. Improvements anywhere else are, at best, a local optimization.

4 Seeing Operating Problems

Structured problem-solving over firefighting

TPS treats every abnormality — a stoppage, a defect, a missed target — as visible evidence of a gap between standard and actual condition. Rather than working around problems, Lean organizations stop, study, and solve them at the root cause using a consistent method.

Tool	When to use it
PDCA (Plan–Do–Check–Act)	The overarching cycle for any improvement or problem-solving effort, large or small.
5 Why	Quick, single-cause problems on the floor — ask "why" repeatedly until the root cause, not the symptom, is reached.
A3 Problem Solving	Cross-functional or recurring problems that need a documented, one-page storyboard of the analysis.
Gemba Walk	Before analyzing any problem — go see the actual process, at the actual place, with the actual people, rather than relying on reports.

How to practice it: Without a standard, there is no "abnormal" — and without a visible abnormal, there is no problem to solve. Standard work is the baseline every improvement is measured against.

Getting Started: Your First 30 Days

Week 1–2: Observe Walk the Gemba daily. Map one product's current path. List every wait, move, and stop you see without trying to fix anything yet.	Week 2–3: Locate Identify the process constraint using WIP piles and cycle-time data. Confirm it with the people who run the station.	Week 3–4: Act Run one small PDCA cycle on the constraint. Establish or confirm the standard work it should follow, and measure the before/after.
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Quick-Reference Glossary

Muda / Mura / Muri	The three sources of process strain: waste, unevenness, and overburden.
Kaizen	Continuous, incremental improvement carried out by the people who do the work.
Takt Time	Available production time divided by customer demand — the pace the process should run at.
Jidoka	Building quality in by stopping the process the moment an abnormality is detected.
Heijunka	Leveling production volume and mix to avoid overburden and uneven flow.
Kanban	A visual signal that authorizes replenishment only when downstream demand pulls it.

For more information, request a consultation at trueleansolutions.ca

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