

Inspection is a Waste of Time!

The Toyota Production System looks at Inspection as a waste - Muda!

Just as in Set-up reduction, the best set-up is “no-set-up,” And so it is that the best inspection is “NO INSPECTION!”

If you are relying on In-Process Inspection, like a few of my clients. Then you are adding all kinds of waste, on top of waste.

Example of Waste:

1. Move to Inspection Area- The waste of excess transportation and movement
2. Wait in the Inspection queue - The waste of Waiting & Delays
3. Inspector measures against the specifications - The waste of unnecessary process and double-handling. One of the placebo, I started at recently actually has three or four inspectors line up side by side to inspect the “batch” of product. They begin to inspect different aspects, but fail to keep track of the product in motion. Besides double-handling, some product, may be missed. This is the fallacy of 100% manual inspection. Because of human error, fatigue, distractions, etc. You are lucky to get 85% accuracy. Would you fly in an airplane that has an 85% maintenance record? The waste of Waiting & Delays
4. Now let's take a look at the instruments and gauges that the inspector is using. So many inspection departments are still relying on calipers. Most are digital these days, but too often I still see analog, dial-type of calipers. The waste of Waiting & Delays

What's important is to build-in quality at the source. If your operation is sophisticated enough - build in quality at the engineering phase. This is called **Design for Six Sigma (DFSS)**.

Here are some ideas on eliminating inspection:

- A. Continually train and audit your employees to self-inspect as they go. Provide visual procedures that eliminate variation. Mistake-proof, Poke Yoke, the process- Remember that if you are strictly relying on final inspection, then it's going to be very expensive to repair something the further down-stream you catch it.
- B. Conduct quarterly Gage R&R's on both your employees and inspectors to prove out their accuracy and repeatability.
- C. Use technology where we would normally rely on the human eye.
 - Coordinate Measuring Machines- (CMM)
 - Electronic or Laser Parts verifiers
 - Camera Microscopes with software to validate the specs. We installed one of these at Sanyo Solar, and took the dpmo from 55,000 defects per million, down to 2,000 defects per million in 10 weeks. To the naked eye, the solar wafer looked square and intact, but when compared under the microscope we could detect ragged edges and not squared.
 - 3 Dimensional Blue Light Scanners - delivers the accuracy, speed and higher resolution - I have one client that is using it for product traceability and turns in the profile to his military/aerospace clients with the shipment
 - FARO CMM Arms



In closing, you may be able to eliminate many of these investments by simply improving the process. At one of my clients, we got an industrial engineering intern from the local college to come up with a self-centering fixture for the product. This eliminated, measuring and taping down so well, that we eliminated inspection at that operation. Not needed, and it consistently met customer expectations!

Finally, remember the Cost of Poor Quality levels: The least expensive is #1, the most expensive is #4:

1. Prevention is Key!
2. Inspection
3. Internal Failures
4. External Failures - reach the customer, causes ill-will, revenue loss, loss of market share, credibility, reputation, etc.