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Lean Thoughts

Jidoka

(Line Stoppage Variation)

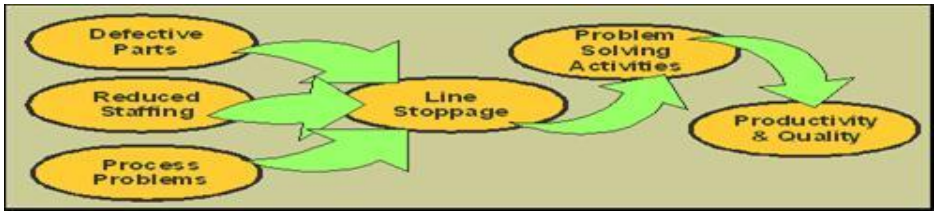
Jidoka (literally translated) means "Automation". Through shop usage at Toyota the word has taken on other connotations. **One meaning refers to the stopping of a manual assembly or production line when something goes amiss.**

At Toyota, every worker has the authority *and* the responsibility to stop an entire line when a problem arises. **The purpose is to bring attention to the problem, regardless of how small, and focus efforts on it.** This forces a permanent solution.

It has been an article of faith in automotive plants that an assembly line must never stop. **When Taiichi Ohno first told supervisors to stop the lines when trouble developed, they were incredulous.**

Ohno tells of two supervisors: one who followed orders and stopped the line immediately when trouble developed and another who was reluctant to stop the line.

At first, the line that stopped frequently had lower output. After several months, however, the situation reversed. The line that rarely stopped still had the same problems. These problems stalled productivity improvements and created rework that lowered efficiency. The line that initially saw frequent stoppages found that the stoppages had been reduced and overall efficiency improved.



A Cautionary Note
Jidoka only works when the supervisors and operators have the skills and experience to fix the problems.

The Essence of Lean Manufacturing

***ALL* work processes are controlled, scientific experiments, constantly modified and improved by the people who do the work.**

This unspoken, unrecognized belief gives rise to unspoken, unrecognized **rules for work processes and behavior.**

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Each rule derives from hypotheses about the production process. If the hypotheses are correct, there are no problems. When problems arise, as shown by the indicators, the operation is fixed according to the responses.

The rules imply two distinct, simultaneous but interconnected processes:

- **A production process that makes product.**
- **An improvement process that makes the production process better and better (Continuous Improvement).**

The rules are not absolute dictums but, guides, and ideals.

Where Lean Thoughts can become Reality

"Unless you try to do something beyond what you have already mastered, you will never grow."

Ronald. E. Osborn

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The Unspoken Rules of Toyota

	Rule	Implied Hypotheses	Problem Signals	Responses
How People Work	Specifications document all work processes and include content, sequence, timing and outcome.	▶ The person or machine can perform the work as specified ▶ If the work is done as specified, the product is defect-free.	▶ The work procedure varies from specification ▶ Defective Products	▶ Improve training ▶ Improve Process Capability ▶ Modify the work specification
How Work Connects	Connections with clear YES/NO signals directly link every customer and supplier.	▶ Customer requests have a known, specific volume and mix. ▶ The supplier can respond to requests.	▶ Responses do not keep pace with requests. ▶ Supplier is idle waiting for requests.	▶ Determine true mix and demand. ▶ Determine true supplier capability. ▶ Retrain/improve/modify.
The Physical Arrangement	Every product and service travels a single, simple and direct flow path.	▶ Every supplier in the flow path is required and suppliers not on the flow path are not required	▶ A person or machine is not needed. ▶ Unspecified supplier performs work.	▶ Determine why supplier was unnecessary; redesign flow. ▶ Determine reason for unspecified supplier; redesign flow.
How To Improve	Workers at the lowest feasible level, guided by a teacher (Sensei), improve their own work processes.	▶ A specific change causes a specific, predictable improvement in productivity, quality or other parameter.	▶ Actual result varies from expected result.	▶ Determine why the actual result differed from the prediction. ▶ Redesign the change.
Problem Alarms	Integrated failure tests automatically signal deviations for every activity, connection & flow path.	▶ Automatic alarms prevent defects or sub-standard performance.	▶ Defects are passed through to the next operation. ▶ Sub-Standard Performance.	▶ Analyze and institute new or improved alarms.

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