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# LEAN THOUGHTS

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## Poka yoke (Mistake Proofing)

**Poka yoke** is a quality management concept developed by a Matsushita manufacturing engineer named Shigeo Shingo to prevent human errors from occurring in the production line. Poka yoke (pronounced “poh-kah yoh-kay”) comes from two Japanese words—“yokeru” which means, “to avoid”, and “poka” which means “inadvertent errors.” Thus, Poka yoke more or less translates to “avoiding inadvertent errors”.

Poka yoke is sometimes referred to in English by some people as “fool-proofing”. However, this doesn’t sound politically correct if applied to employees, so the English equivalent used by Shingo was “error avoidance.” Other variants like “mistake proofing” or “fail-safe operation” have likewise become popular.

The main objective of Poke Yoke is to achieve zero defects. In fact, it is just one of the many components of Shingo’s Zero Quality Control (ZQC) system, the goal of which is to eliminate defective products.

Poka yoke is more of a concept than a procedure. Thus, its implementation is governed by what people think they can do to prevent errors in their workplace, and not by a set of step-by-step instructions on how they should do their job.

Poka yoke is implemented by using simple objects like fixtures, jigs, gadgets, warning devices, paper systems, and the like to prevent people from committing mistakes, even if they try to! These objects, known as Poka yoke devices, are usually used to stop the machine and alert the operator if something is about to go wrong.

Anybody can and should practice Poka yoke in the workplace. Poke-Yoke does not entail any rocket science—sometimes it just needs common sense and the appropriate Poka yoke device. Poka yoke devices should have the following characteristics:

- 1) Useable by all workers;
- 2) Simple to install;
- 3) Does not require continuous attention from the operator (ideally, it should work even if the operator is not aware of it);
- 4) Low-cost;
- 5) Provides instantaneous feedback, prevention, or correction. A lot of Shingo's poka yoke devices cost less than \$50!

Of course, error proofing can be achieved by extensive automation and computerization. However, this approach is expensive and complicated, and may not be practical for small operations. Besides, it defeats the original purpose of Poka yoke, which is to reduce defects from mistakes through the simplest and lowest-cost manner possible.

Poka yoke is at its best when it prevents mistakes, not when it merely catches them. Since human errors usually stem from people who get distracted, tired, confused, or de-motivated, a good Poka yoke solution is one that requires no attention from the operator. Such a Poka yoke device will prevent the occurrence of mistake even if the operator loses focus in what she is doing.

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Where “Lean Thoughts”  
Become Reality

#### Examples of 'attention-free' Poke Yoke solutions:

- A jig that prevents a part from being misoriented during loading
- Non-symmetrical screw hole locations that would prevent a plate from being screwed down incorrectly
- Electrical plugs that can only be inserted into the correct outlets
- Notches on boards that only allow correct insertion into edge connectors
- A flip-type cover over a button that will prevent the button from being accidentally pressed

#### Three levels of Poka yoke:

- 1) Elimination of spills, leaks, losses at the source or prevention of a mistake from being committed
- 2) Detection of a loss or mistake as it occurs, allowing correction before it becomes a problem
- 3) Detection of a loss or mistake after it has occurred, just in time before it blows up into a major issue (least effective)

Source: [www.semiconfareast.com](http://www.semiconfareast.com)

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*We can be a cost effective extension of your CI Department without adding permanent resources.*



#### Process Speed: Driver of Cost Reduction

“The time element in manufacturing stretches from the moment raw material is separated from the earth to the moment when finished product is delivered to the ultimate consumers.

Ordinarily, money put into inventory is thought of as live money... **but it is waste – which like every other form of waste, turns up in high prices. We do not own or use a single warehouse! Time waste differs from material waste because there can be no salvage.**”

- Henry Ford

#### Beware of Metrics

*“Even a stopped clock is right twice every day. After some years it can boast of a long series of successes.”*

Ebner-Eschenback

#### Here are 5 Lean Preparation Steps

##### 1. STABILITY:

- a) Implement a quality management system to stabilize product quality.
- b) Standardize work to stabilize delivery lead-times.
- c) Manage suppliers for stable delivery
- d) Ensure maximum machine availability

**2. MANAGEMENT ALIGNMENT:** Ensure that the whole management team is aligned with the lean strategy. Reorganize by product family. Remove anchor draggers. Leadership from the top is essential.

##### 3. UNION ALIGNMENT:

Ensure union buy-in by sharing the lean vision and give assurances not to retrench, if required. Train union members in lean principles. Create an all-inclusive steering committee.

##### 4. TRAINING & COMMUNICATION:

Train all the role players in lean principles and techniques, e.g. value stream mapping, operator balance charts etc. Communicate the lean vision to the whole organization. Explain the need to go lean and what the strategy is.

##### 5. MEASUREMENTS & INCENTIVES:

Carefully choose new measurements for managers and operations. These measurements must support the lean implementation, e.g. lead-time reduction, set-up time reduction, inventory reduction etc. Apply even more care to the design of new improvement incentives based on gain sharing.

**Once Again... the 5 Lean Implementation Steps follow the 5 steps in Lean Thinking. i.e.:**

1. Specify value as experienced by the customer
2. Map the value stream for every product family
3. Reorganize the value stream for flow
4. Schedule the pacemaker and let the customer pull
5. Repeat the process to perfection

2008 Consortium Event Schedule



Tour Workshop Conference

January	February	March	April	May	June
<p><b>T</b></p> <p>Wednesday 16  <b>Eaton Electrical</b>,                      contact Joe Fisher,  <a href="mailto:JoeRFisher@eaton.com">JoeRFisher@eaton.com</a></p>	<p><b>T</b></p> <p>Wednesday 13,  <b>ACE Bakery</b>,                      contact Cindy Grolleman,  <a href="mailto:cgrolleman@acebakery.com">cgrolleman@acebakery.com</a></p>	<p><b>T</b></p> <p>Wednesday 19,  <b>Nestle Waters</b>,                      contact Mariela Castano  <a href="mailto:mcastano@perriergroup.com">mcastano@perriergroup.com</a></p>	<p><b>C</b></p> <p><b>Consortium Shareshowcase</b></p> <p>Saturday 05  <b>Eaton Milton</b>,                      Contact Cindy Grolleman  <a href="mailto:cgrolleman@acebakery.com">cgrolleman@acebakery.com</a>                      or Joe Fisher  <a href="mailto:JoeRFisher@eaton.com">JoeRFisher@eaton.com</a></p>	<p><b>T</b></p> <p>Wednesday 14,  <b>Alumicor</b>,                      contact Barry Wood  <a href="mailto:barry@Alumicor.com">barry@Alumicor.com</a></p>	<p><b>T</b></p> <p>Wednesday 18,  <b>Morrison LaMothe</b>,                      contact Tony Vita  <a href="mailto:tvita@morrisonlamthe.com">tvita@morrisonlamthe.com</a></p>
July	August	September	October	November	December
		<p><b>T</b></p> <p>Wednesday 24,  <b>Kraft Foods</b>,                      contact Hanif Jivraj  <a href="mailto:hjivraj@Kraft.com">hjivraj@Kraft.com</a></p> <p><b>C</b></p> <p><b>Executive Forum</b>                      Tuesday &amp; Wednesday                      23<sup>rd</sup> &amp; 24<sup>th</sup>                      Contact Richard to register  <a href="mailto:rkunst@kumstartofsolutions.com">rkunst@kumstartofsolutions.com</a></p> <p><b>C</b></p> <p>22<sup>nd</sup> Transportation                      Thursday 24<sup>th</sup>  <a href="http://www.transportconference.net/empire.html">http://www.transportconference.net/empire.html</a></p>	<p><b>T</b></p> <p>Wednesday 16,  <b>CTS Corp.</b>,                      contact Navneet Mann,  <a href="mailto:navneet.mann@ctscorp.com">navneet.mann@ctscorp.com</a></p>	<p><b>T</b></p> <p>Wednesday 12,  <b>Messier-Dowty</b>,                      contact Mike Smith  <a href="mailto:Mike.Smith@Messier-dowty.on.ca">Mike.Smith@Messier-dowty.on.ca</a></p>	<p><b>T</b></p> <p>Wednesday 10,  <b>Orenda</b>,                      contact Brenda McIntosh  <a href="mailto:brendamcintosh@orenda.com">brendamcintosh@orenda.com</a></p>