

RICK BRIMEYER

Perfect products and services in an imperfect world

Several years ago, the company I was working for was informed by a major customer that our quality needed to improve ... by a factor of 10.

Our initial reaction was denial. "We're supplying complex transmissions to them with a defect rate of a quarter of a percent. That's 99.75 percent good. They don't know what they're asking!"

The customer patiently explained that their tractors contained thousands of components. If every component was supplied with 0.25 percent defective, statistics predicted that each tractor rolled off the line with several defects. That was clearly unacceptable to their customers.

It quickly became evident that arguing was futile. We had to get to work. How in the heck were we going to ship products with a defect rate of 0.025 percent or 99.975 percent good?

The solution, like so many in business, involved both changes in how we did things (i.e. the tools we used) as well as how we thought about things (i.e. our culture).

Mistake proofing is a Lean tool which recognizes the difference between errors and defects. Errors cause defects. Put another way, the error is the input; the defect is the resultant output.

Unfortunately, errors are unavoidable when working with humans. Sure they

can be reduced through solid hiring practices, proper training and a good working environment. But ultimately "to err is human."

But (and here's the key point) errors do not have to result in defects.

By using the creativity of team members, simple mistake proofs can frequently be implemented to keep errors from turning into defects. Good mistake proofs are:

- 100 percent effective (catching every incident of a particular error).
 - Objective (not subject to interpretation).
 - Immediate in their feedback.
 - Low cost (typically less than \$100)
- Let me provide a quick example.

Occasionally, I send emails inadvertently without a subject line. This is considered unprofessional because it doesn't provide the reader with any context as to the urgency of the correspondence. So the defect (or output) is an email missing a Subject line. The input or error is me getting so caught up in writing the message that I forget to fill in the subject line.



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My first attempt at eliminating this defect has been to change the order in which I write emails. I try to fill in the subject first, body second and address list last (which also avoids those embarrassing situations when a partially-completed email is sent).

This reduced the number of emails with missing subject lines but, because success relies totally on following my new habit (and, occasionally, I slip back into my old ways), it hasn't completely solved the problem.

So I was pleasantly surprised to find that the updated email software I recently purchased contains an effective mistake proof. Now when I hit send with a blank subject line, I am immediately informed and encouraged to add one (the fact that I know this is a testament to the effectiveness of the mistake proof and not because I've read the owner's manual).

As mentioned above, changes in thinking (culture) were also required. For mistake proofing to flourish, human errors have to be identified, even embraced, so that they can be guarded against. As a former boss was fond of saying, "It's called mistake proofing because we all make mistakes. It's not fool proofing or idiot proofing. We don't hire fools or idiots here."

We had to change an attitude which accepted a certain level of defects as OK.

Some of this was a legacy of our formal education in which we were trained to believe that anything above 90 percent is an "A." Instead of thinking in terms of percent (defects per hundred), we needed to think in terms of defects per million.

Finally, we had to change how we designed products and processes. If an error could be conceived during the design phase, we made changes to eliminate that possibility. Quality became the primary design consideration. This ultimately resulted in the lowest cost design since defects are incredibly and deceptively expensive.

A year after I left the company, I received a call from a former colleague over lunch. He informed me that they were celebrating one year of shipments of a new transmission that I had helped developed to our challenging customer without a single defect. That's 12,000 units, with roughly 150 components in each unit and every single one perfect!

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