

Lean Enterprise Academy



Jim Womack e-letter – November 2004

The Tower of Babel

Dear Lean Community Member,

Seventeen years ago, in my office at MIT, I witnessed a magic moment when a new term was born. We were getting ready to publish the first article on the findings of the International Motor Vehicle Program and we needed a label to describe the phenomenon we were observing in our study of Toyota.

After trying out a lot of terms that didn't seem quite right, John Krafcik, one of our young researchers, suggested that we name the system -- including its design, production, purchasing, and customer service elements -- for what it does.

So we wrote on a white board the performance attributes of a Toyota-style system, compared with traditional mass production. It:

- Needed less human effort to design, make, and service products;
- Required less investment for a given amount of production capacity;
- Created products with fewer delivered defects and fewer in-process turn-backs;
- Utilized fewer suppliers with higher skills;
- Went from concept-to-launch, order-to-delivery, and problem-to-repair in less time with less human effort;
- Could cost-effectively produce products in lower volume with wider variety to sustain pricing in the market while growing share;
- Needed less inventory at every step from order to delivery and in the service system;
- Caused fewer employee injuries, etc.

After a moment of looking over this list, John said, "It needs less of everything to create a given amount of value, so let's call it lean". And the term was born. (John, by the way, came to MIT from the Toyota-General Motors joint-venture in California. He went on from MIT to 14 years at Ford, where he eventually was Chief Engineer for large sport utility vehicles, and is now Vice President for Strategic and Product Planning at Hyundai Motor America.)

It seemed so simple at the time. But we soon learned that creating a new term is like launching children into the world. The parents have clear ideas about how they want their offspring to behave, but the kids have minds of their own!

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As the years have gone by, we seem to be building a lean Tower of Babel. I hear the term applied very vaguely and used to mean many things: goals (highest quality, lowest cost, shortest lead time), general methods (just-in-time, jidoka), specific tools (kanban, poka-yoke), and the basic foundation (heijunka, standardized work, and kaizen, built on process stability.)

This is fine, but I get upset when I hear the term used inaccurately or in some very narrow way that excludes part of its core meaning. Recently, after reading an article in which a prominent expert on production systems stated that lean doesn't involve standard work, I thought I should say something. So here's what lean means to me:

- It always begins with the customer.
- The customer wants value: the right good or service at the right time, place, and price, with perfect quality.
- Value in any activity – goods, services, or some combination -- is always the end result of a process (design, manufacture, and service for external customers, and business processes for internal customers.)
- Every process consists of a series of steps that need be taken properly in the proper sequence at the proper time.
- To maximize customer value, these steps must be taken with zero waste. (I trust you know the seven wastes of overproduction, waiting, excess conveyance, extra processing, excessive inventory, unnecessary motion, and defects requiring rework or scrap.)
- To achieve zero waste, every step in a value-creating process must be valuable, capable, available, adequate, and flexible, and the steps must flow smoothly and quickly from one to the next at the pull of the downstream customer. (This is how we eliminate the seven wastes identified by Toyota many years ago.)
- A truly lean process is a perfect process: perfectly satisfying the customer's desire for value with zero waste.
- None of us have ever seen a perfect process nor will most of us ever see one. But lean thinkers still believe in perfection, the never-ending journey toward the truly lean process.

Note that identifying the steps in the process, getting them to flow, letting the customer pull, etc. are not the objectives of lean practitioners. These are simply necessary steps to reach the goal of perfect value with zero waste. And note that kanban, poka-yoke, and other specific techniques are simply the means to the means to the end. They are the critical tools for making the general methods work.

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And here is where I think we often get confused. “Lean” must include all of these: They can’t work without each other. We need to utilize all of the goals, methods, techniques, and foundation elements in combination. For example, no process can be capable, available, or smoothly flowing without standard work. And there will be no improvement in any process without rigorous kaizen. It’s only when we deploy the whole arsenal in pursuit of the perfect process that can create perfect value for the customer that the term “lean” becomes magic.

I wish you the best as you pursue perfect, lean processes and I hope you won’t give up until you get there, even if you never do!

Best regards

Jim Womack

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