



The Skinny on Lean

Use It or Lose It – GE Appliances and the Lean Process

What does it take to make a 100-year-old manufacturer globally competitive? That's the question GE Appliances' leaders asked themselves in 2005 when they began applying Lean to eliminate waste during manufacturing. The [vision of what Lean means](#) to the transformation of GE Appliances has grown. GE will launch seven completely revitalized product lines using the Lean process over the next two years – a process that will cut costs and improve GE's competitiveness. That competitiveness means more Americans at work with the creation of more than 1,000 new U.S. jobs.



CRUNCHING NUMBERS USING LEAN

GE GeoSpring™ Hybrid Water Heater and Lean

From product development to production, the GeoSpring Hybrid Water Heater is the first product GE Appliances will introduce using the Lean principles. The proof of Lean's success within this product launch can be found in the numbers:

20%: GE has eliminated one of every five parts first included in GeoSpring assembly.

25%: Lean helped reduce GeoSpring material costs by 25 percent.

30%: GE reduced equipment investment by 30 percent.

50%: The GE GeoSpring team cut its program cycle time in half.

50%: GE reduced resources to build the GeoSpring by over 50 percent.

\$8 Million: GE has saved over \$8 million during GeoSpring development and production.

GE Dishwashers and Lean

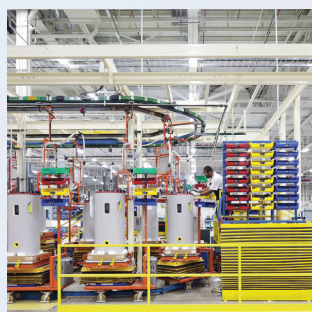
In 2009, GE experimented with Lean on a dishwasher assembly line – resulting in great savings:

30%: Labor efficiency improved by 30 percent after employing Lean principles.

60%: GE reduced dishwasher inventory by 60 percent.

68%: The dishwasher team reduced production time by 68 percent.

80%: The dishwasher production line now requires just a fifth of the space compared to pre-Lean production.



“A large amount of the work in designing, manufacturing, delivering, and selling a product is non-value-added work, or the customer does not want to pay for it. The trick is using Lean to find and eliminate the non-value-added work.”

Richard Calvaruso, Lean Leader for GE Appliances in Louisville, Ky.



Facility Facelift: GE Appliance Park's Transformation with Lean

As Appliance Park transforms itself to a Lean and modern manufacturing facility, the large production buildings are getting a facelift. So far, the amount of steel recycled as a result of the demolition is equal to roughly the amount of structural steel to build or equal:

- 4 KFC Yum! Centers
- 24 fully loaded Boeing 747s
- 2,600 Asian elephants



Bare Bones: Lean Background

Lean determines what customers want and are willing to pay for – then the most efficient way to create that product. In a manufacturing environment, Lean:

- Creates efficiencies during the initial design and manufacturing processes
- Reduces ergonomic issues for operators
- Simplifies the entire production process
- Continually refines product and manufacturing processes to add value for the customer
- Eliminates waste, whether it's time, resources or parts, during production
- Produces better quality products
- Reduces the need for product repairs after production
- Saves money for manufacturer and consumer

Lean was adopted from processes developed by Henry Ford as well as Kiichiro Toyoda, Taiichi Ohno, and others at Toyota. Visit <http://www.lean.org/WhatsLean/> for a full history.

The Lean Team Packs a 1-2-3 Punch

Every skill needed to build a new product is in the same room from the first day through product launch.

1. Co-location of the core team is key. For each product launch, there is one space dedicated to one product using engineers, quality employees, hourly and salaried production workers, and sourcing teams.
2. The cross-functional approach cuts product development time and involves all team members in the entire process – from design through production.
3. Lean promotes a "One-Team" approach to problem solving.

The Basic Steps of Lean:

1. Specify the value from the customers' perspective.
2. Identify all steps required to deliver the product or service to the customer.
3. Eliminate steps that don't create value.
4. Create a process that flows smoothly.
5. When it isn't possible to flow, create a system that pulls from the upstream process.
6. Repeat until no waste exists.