

Improve the Work,
Develop the People

Lean Transformation
Summit 2014
March 5 & 6, 2014 | Orlando, FL



THE BUILDING BLOCKS FOR CONTINUOUS INNOVATION

Lean Enterprise Institute

**GE Appliances Lean Report
– One Year Later**



How GE is transforming Product Development

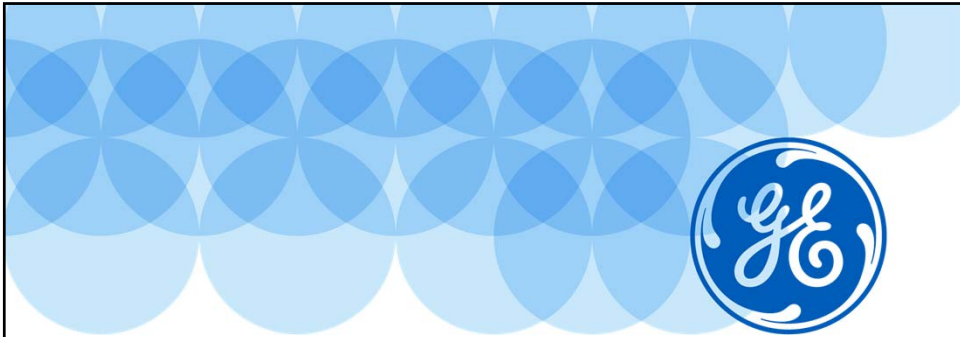
**Kevin Nolan
Vice President of
Technology**



Lean Transformation Summit 2014

Lean Transformation
Summit 2014





LEI Summit
Kevin Nolan
Vice President, Technology
GE Appliances

Imagination at work.



GE Appliances

- \$5.6 billion in revenue
- North American focus
- US Manufacturing
 - Water heaters
 - Washers / Dryers
 - Refrigerators
 - Dishwashers
 - Cooking products



Our Clock Speed

Today we will ...

- Sell 15,000 appliances at retail
- Sell 12,000 appliances in contract
- Install 17,000 units in homes
- Provide service to 6,200 consumers



Black Friday



An update on our journey...

- Where we've been
- How are we doing?
- How we are learning



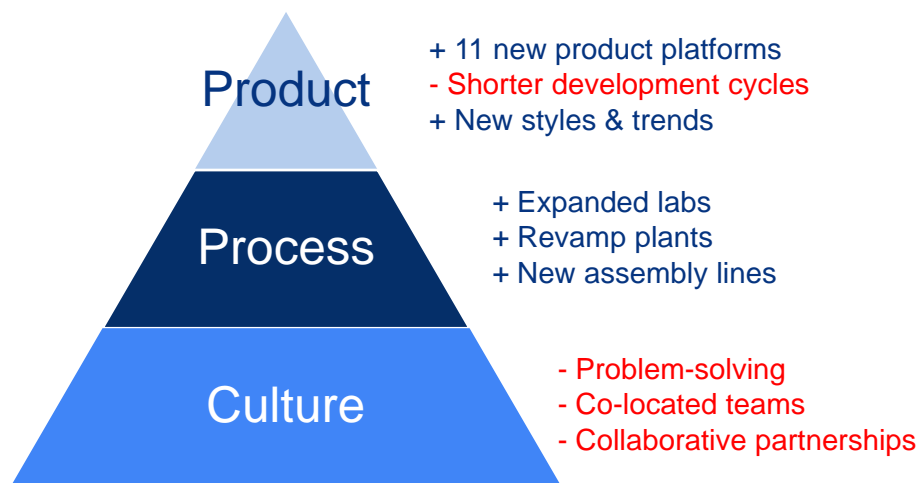
Where we've been...

We set out to transform everything

- \$1 billion investment
- 11 new product platforms
- 6 new/revamped plants
- 3,000 new co-workers



How are we doing?...



How we are learning...

Need speed and alignment

- On factory floor
- In product development
- With the customer



Speed and alignment...

on the factory floor



Refrigeration production support

2013 Started with a variety of issues:

- High rework and scrap
- Struggled to build mix
- Slow to make changes
- Chaos limited new product intros

We took drastic actions:

- Reprioritized funding
- Focused resources on floor

We had poor results:

- Constant functional reviews
- Multiple functional directions



No alignment on priorities

Team alignment...

Alignment mid 2013

- Business strategy
- Operational metrics
- 6 Key targets
- Goals by area
- Tasks by owners

Hoshin in 2014

- Weekly area reviews
- Daily escalation meetings
- Operator visibility



First able to stabilize... now improving

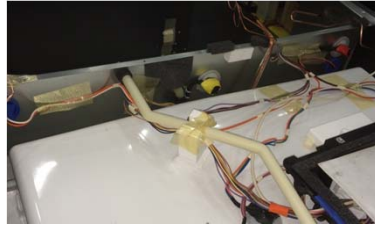


Fixing operator struggles

Refrigeration case assembly

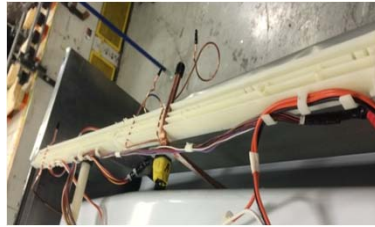
Current

- Complexity forcing stop and go line
- Top quality and yield issue



New...

- Operator and Engineer design
- Eliminates 30 parts
- Reduce 100 Sec of cycle time
- Reduced foam leaks



From Payback to # problems fixed per week

Refrigeration Case Assembly

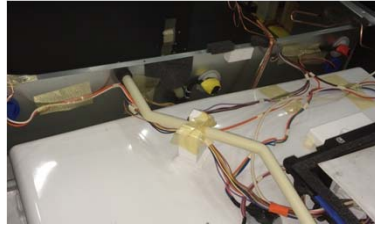


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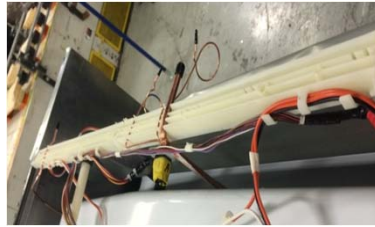
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Speed and alignment... in product development

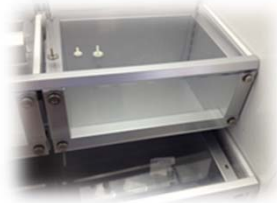


Big rooms: everyone sitting together...
working the same old way



Design needed to be driven by ... Consumers & Manufacturing

Consumer requirements



Drive design details



Manufacturing requirements



When design drove requirements...



Design forced...

- Elevated platform
- Back and front access
- Two operators
- Expensive fixtures
- Poor ergo jobs



When manufacturing leads...



Manufacturing required...

- Single station
- Assembly in takt time
- No red ergo jobs
- No special fixtures

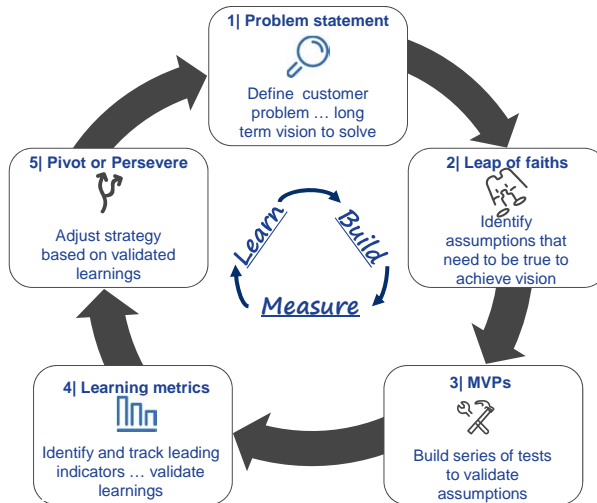
Speed and alignment... with the customer

FastWorks

- ✓ Get us closer to customers
- ✓ Increase our speed to market
- ✓ Increase chance of success
- ✓ Make it easier to get things done



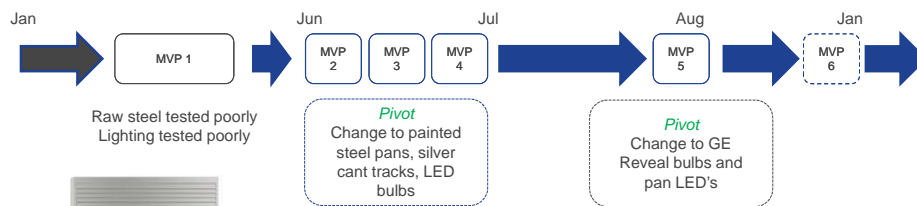
The FastWorks Framework



Biggest waste is launching a product consumers don't want

French Door Fast Work project

Will customers like fabricated interiors?



- Half the program cost
- Twice the program speed
- Selling over 2X normal sales rate!





Lessons Learned

- New skills take time and practice
- What looks the easiest is often the hardest
- Change needs to be driven from the top
- Lack of money and resources can help



Questions?

