

SUSTAINABLE **PRODUCTIVITY** NEWS

*“for improving operating margin with **Continuous Process Improvement tools**”*

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Industry 4.0 Drives Data Analytics, Simulation, and Optimization

The term "Industry 4.0" was coined to describe the smart factories, intelligent machines and networked processes that facilitate and result from the 4th industrial revolution that is now beginning.

The first industrial revolution started in late 18th century with the first mechanical manufacturing facilities and the widespread use of steam engines and coal for energy.

The second industrial revolution started around 1900 with electricity and the development of mass production for large capital goods industries such as steel and automotive.

The microchip, computers, and globalization ushered in the 3rd industrial revolution in the 1970s, which also expanded highly efficient production on a global scale.

The 4th industrial revolution merges existing industrial infrastructure with the Internet of things and Cloud Computing, creating an interface between the virtual and physical world.

With Industry 4.0, it is expected that networked embedded systems with internet-based wireless technologies will receive sensor data and use it to control flows of materials, products, and information. Intelligent materials will tell machines how they need to be processed. Maintenance and servicing will be initiated by the components of the smart factory. Rigid production lines will be transformed into modular, efficient systems that conserve resources.

The following are four areas where Industry 4.0 is expected to drive increased data analytics, simulation, and optimization:

- 1) **Analytics and Data Management** - With the enormous quantities of data generated, smart and efficient data management will generate new insights, improve decision-making, and create a competitive advantage.
- 2) **Operational Efficiency** - Effective analysis of data collected will enable rapid systems analysis to improve operational safety, work processes, and maintenance practices.
- 3) **Smart Supply Chains** - Increased data availability will drive use of simulation/ optimization in an effort to make supply chains smarter, more transparent, and more efficient.
- 4) **Smart Logistics** - Inbound logistics, intra-logistics, and outbound logistics will need to be more effectively integrated to facilitate building of flexible logistics systems, as well as new warehousing and distribution models. Simulation and optimization will be needed to accomplish this.

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Understanding LEAN

What is Lean About?

Eliminating Waste in Our Processes; this includes unnecessary motion, rework, overproduction, etc.

How is LEAN different?

Instead of focusing our process improvement efforts on getting our people to work harder, LEAN focuses on identifying & eliminating activities that create wasteful movement by our people, so that they can focus more of their time & energy on productive activities.



Why LEAN?

Most products spend 60+% of their time in wasteful activities (by product, we are referring to what the process produces: bag of coffee, spinach, purchase order, circuit board, intermodal box loading, etc.). By significantly reducing the time spent in wasteful activities, our process capability (throughput) increases significantly, and our people spend more time doing productive work; resulting in a reduction of operational cost per production unit.

How does the LEAN process work?

First Step is seeing and mapping the process.

Second Step is collecting and analyzing data around the individual process steps, and completing a value stream map.

Third Step is where we develop solutions for reducing the waste discovered in our processes.

Fourth Step is where we ensure follow-up on the solutions generated by the team until the solutions become a “normal” part

of our process. Throughout this whole effort, the more we involve the front line workforce and managers in the discussions, the more sustainable and effective our solutions will be.

Challenges in Implementing LEAN, where a

good coach can make a big difference:

- 1) Gaining commitment from workforce to actively participate in the LEAN process.
- 2) Ensuring that leadership team participates in behavior change needed to ensure a successful LEAN effort.
- 3) Utilizing the appropriate LEAN tool(s) that match the improvement opportunities identified.
- 4) Reinforce best practices and keep internal teams on track.

CONFERENCE CALENDAR

IISE Engineering Lean & Six Sigma Conference

September 14-16, 2016
San Antonio, Texas

Association for Manufacturing Excellence Conference

October 24-28, 2016
Dallas, Texas

Western Growers Association Annual Conference

November 6-8, 2016
Kauai, Hawaii

SME FABTECH

November 16-18, 2016
Las Vegas, Nevada

CONFERENCE CALENDAR

Winter Simulation Conference

December 11-14,
2016
Washington, D.C.

HIMSS Annual Conference

February 19-23,
2017
Orlando, Florida

Health Care Systems Process Improvement

March 1-3, 2017
Orlando, Florida

IISE Annual Conference

May 20-23, 2017
Pittsburgh,
Pennsylvania

5S: A Great Way to Kick Start the LEAN Effort

What is 5S?

5S is a process that drives productivity. It involves effectively organizing and managing Tools/Materials storage locations.

go by the rule “put everything back in its place, when you are not using it”. Then we perform periodic audits to ensure that we are still keeping tools/material in the



Before



After

How does 5S work?

5S stands for the five steps you follow to get through the 5S process:

- 1) In the **Sort** Step, we empty the storage area, sort out all the tools/materials by frequency of use, and only keep what is needed.
- 2) In the **Straighten** Step, we organize all the tools/material by type and size, and determine which tool/material goes where in the storage location..
- 3) In the **Shine** Step, we clean the storage area and repair/ fix broken tools/material. For example, if a tool needs to be sharpened, we sharpen it.
- 4) In the **Standardize** Step, we establish clear, visual expectations so that everyone knows how to keep area organized and stocked.
- 5) In the **Sustain** Step, we first

agreed upon locations.

Why DO 5S?

It provides quick payback in productivity, safety, and financial savings. You can expect the following benefits after applying 5S:

- Tools/Materials are easier to find, reducing the time spent looking for them (improved productivity)
- Better visibility of our tools/material, reducing the risk of stock out and unnecessary downtime waiting for reorder (improved productivity)
- We find tools/material we didn't realize we had, which means we can order less (financial savings)
- It reduces clutter in the storage area, making the area safer to walk through (improved safety)

Arroyo Grande, CA Seminar Schedule

Building a Continuous Process Improvement Culture -

Wednesday, October 12, 9 AM to 3 PM

Improving productivity improves our bottom line. Learn to use the most commonly used LEAN tools and the critical Continuous Process Improvement principles.

Improve Employee Engagement

Thursday, October 13, 9 AM to Noon

Employee engagement is critical to increasing productivity. Learn how to use praise, delegation, and conflict resolution to improve employee engagement.

All seminars will be held in Arroyo Grande, CA. Lunch will be included in the full-day session. For more information or to register, contact us at (831) 515-7337 or lym@reduceor.com.

" ... highly recommend the seminars to anyone who understands there is always room for improvement." - Jordan Marcellus, Greenheart Farms

" ... an excellent trainer and very knowledgeable! It's a must to attend his seminars." - Julio Lopez, Costa Farms

" ... enjoyed the course and brought more of my Team Members the second time around." - Bart Walker, Pacific AG Rentals

Santa Cruz County AgTech Meetups

We are working with Digital Nest to recruit speakers for the Santa Cruz County AgTech Meetups. If you're interested in presenting at a future meetup, please email Khaled at kmabrouk@reduceor.com with the topic you are comfortable speaking to. The list of topics and schedule are below:

August 31, 2016	Harvesting
October 26, 2016	Processing & Shipping
December 24, 2016	Planning & Resource Allocation
February 22, 2017	Land Preparation
April 26, 2017	Planting
June 28, 2017	Production

These meetups occur at the Digital Nest, located at 318 Union St, Watsonville, California, starting at 5:30pm.

Contact Us

Contact us when you need to generate sustainable productivity solutions for challenging operational issues.

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