News Impacting the Manufacturing World in Washington State and Beyond.

Robotics and You - Yes, YOU!

Loren Lyon, Center Director

Bringing back manufacturing to the United States is a highly appealing idea that brings with it good jobs, careers, a huge ripple effect and growth of supply chain companies and important economic impact.

But it takes more than just the idea; we need to change how we operate.

Lean transformations are a big part of this

They have the resources to analyze and implement the most complex systems.

But 99% of the manufacturing companies in the United States are small to medium sized (SME). These companies often are faced with low volume/high mix applications. This makes automation a bit more complex and requires more flexibility from robotics.
Lean transformations are a big part of this change and factory automation/robotics can also be a very important and logical element of this change.

Large manufacturing companies embrace automation and enjoy tremendous benefits to their businesses. Cost reduction, capacity expansion, overall company growth are all benefits of lean transformations and factory automation.

Owners and managers of SME’s have been reluctant to examine robotics as they often believe that it is not a match for their smaller business.

This is changing and changing rapidly.

Take a hard look at the changes in factory automation and work with experts to help determine the fit for your particular application!

Five Reasons to Use Robotics in Manufacturing

1. Robots used in manufacturing create efficiencies all the way from raw material handling to finished product packing.
2. Robots can be programmed to operate 24/7 in lights-out situations for continuous production.
3. Robotic equipment is highly flexible and can be customized to perform even complex functions.
4. With robotics in greater use today than ever, manufacturers increasingly need to embrace automation to stay competitive.
5. Automation can be highly cost-effective for nearly every size of company, including small shops.

Five Ways Robots Don't Eliminate Manufacturing Jobs
1. When North American companies can’t compete, jobs are sent offshore.
2. Robots in manufacturing help to create jobs by reshoring more manufacturing work.
3. Robots protect workers from repetitive, mundane and dangerous tasks, while also creating more desirable jobs, like engineering, programming, management and equipment maintenance.
4. Robots free up manpower to let companies maximize workers’ skills in other areas of the business.
5. Today’s labor market includes fewer skilled manufacturing workers due to decades of offshoring, and robots eliminate the shortfall.

**Five Ways Robotics Make North American Manufacturers Globally Competitive**

1. Automation allows domestic companies to be price competitive with offshore companies.
2. Robotics in manufacturing achieve higher throughput, so companies can vie for larger contracts.
3. Robots achieve ROI quickly, often within two years, offsetting their upfront cost.
4. Department of Labor statistics indicate that American workers are maximizing their output capacity, and robots help manufacturers break that ceiling.
5. In a world where the importance of green manufacturing is growing, robots save on utilities since they don’t require climate control or lighting, and they create cleaner spaces.

**Everyone Can Use Robots**

Today’s fast and flexible robots work in industries ranging from rubber and plastic processing to semiconductor manufacturing and research. While still a mainstay of high-volume production, robots are finding more roles in small to medium-sized operations.

**What Are Robots Doing?**

Any repetitive task is a candidate for robotic manufacturing, especially if it’s difficult or dangerous for a human, or takes place in a hostile environment. What’s more, adding force sensing and vision systems lets a robot adapt to changes in part position or orientation, increasing flexibility and versatility. Good jobs for robots include:

- **Machine Tool Tending**
- **Material Removal**
- **Palletization and De-Palletizing**
- **Material Handling**
- **Welding, Gas Metal Arc Welding (Submerged Arc and Resistance)**
- **Assembly**

**Revolutionizing Assembly**

Moving quickly and accurately, robots handle parts too small for human eyes and fingers and never make mistakes. That’s one reason growing numbers of products are designed for robotic assembly from the outset.
Vision technology is fast becoming standard, reducing the need for expensive fixturing and tooling, and force sensing lets a robot adapt when an assembly problem is encountered.

*Every manufacturer can benefit from putting robots to work.*

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**The automation of the fourth industrial revolution is accelerating:** By 2018, around 1.3 million industrial robots will be entering service in factories around the world.

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**More Questions About Robotics? Contact Us!**

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**The impact of robots on workforce automation**

Industrial automation has been on the minds of those in the manufacturing world for not just decades, but centuries. Whether we’re talking about individuals who worked in flour mills...
or those who dealt with windmills, automated processes have always been on inventors’ minds. While automation would technically result in job losses, the increased prevalence of robots and robotics parts in the manufacturing, packaging, and engineering space would result in interesting implications for consumers, employees, companies and organizations. Read more here.

### 5 Manufacturing Applications for Robotics in 2018

Manufacturers and engineers tend to have a love-hate relationship with robotics. Millennials typically favor next-gen robotics due to their efficiency and ease of use, but older generations are more skeptical about their benefits. For them, the fear of industrial automation taking over the jobs of human workers is already very tangible.

While some of these fears are legitimate concerns, increased industrial automation is generally viewed favorably by our society. As a result, next-gen technology is making its way into nearly every nook and cranny of the manufacturing industry and, in turn, throughout our daily lives. Read more here.

### Advanced Robotics for Manufacturing Institute

Join the Advanced Robotics for Manufacturing (ARM) Institute, the University of Washington, and Impact Washington to learn how ARM’s national consortium will drive innovation in industrial robotics and workforce development. Thursday, March 22, 2018 from 1:00 to 5:00 PM. More information and register HERE.

### Western Allied Robotics

Started in 2002, Western Allied Robotics (WAR) is a loose knit organization of Pacific Northwest combat robot enthusiasts. Three to four events are held each year in the Northwest Region of the US.

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**ASIMOV’S THREE LAWS OF ROBOTICS**

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.

2. A robot must obey orders given to it by human beings, except where such orders would conflict with the first law.

3. A robot must protect its own existence as long as such protection does not involve injury to humans.
Development in Robotics
2017 presented the world with exciting developments in robotic behavior, like this Atlas robot created by Boston Dynamics.

It's almost that time of year again... tax time! Go here for more resources or to sign up a free webinar on the new web portal the Washington State Department is launching this year.

Revolutionizing manufacturing the world over, the Unimate was the very first industrial robot. Conceived from a design for a mechanical arm patented in 1954 (granted in 1961) by American inventor George Devol, the Unimate was developed as a result of the foresight and business acumen of Joseph Engelberger - the Father of Robotics.

Global spending on robotics will climb to more than $67 billion by 2025.

Featured Client Success Story
Company Profile
Itek Energy is a premier manufacturer of high-quality, assembled in America solar modules based in Bellingham, WA.

Situation
The objective of the training program was to create a culture of continuous improvement and Lean practices, as

The Seattle Robotics Society was formed in 1982 to serve those interested in building robots and associated technologies. They are a non-profit corporation consisting of a diverse group of technologists and tinkerers. Their collective passion is...
well as enhancing supervisor and production skills to facilitate the growth Itek Energy is experiencing. The training focused on sustained growth and improvement practices, high quality and customer service. The workforce required skills training in the following areas:

- Actual solar panel manufacturing processes, (Training Within Industry [TWI]).
- Supervisory skill training to ensure existing and newly appointed supervisors have the needed skills and to aid in the growth of the company and successfully onboard new employees.
- Continuous Improvement, Quality Assurance and Lean Enterprise.

**Solution**

Lean Manufacturing and Toyota Kata training. The training focused on sustained growth and improvement practices, high quality, and customer service.

**Results**

Overall improvement of employee morale was realized as a result of the training along with the following:

- Significant reduction in the failure rates of finished products
- More efficiency in producing products
- More organized, efficient workplace
- Rework of nonconforming solar panels has dropped an astounding 80% due to the problem solving

**Why Robots Should Shake the Bejeezus Out of Cherry Trees**

Researchers at Washington State University have developed algorithms that scan a tree for individual branches, then determine what bit of each branch to grasp and shake to extract the most cherries—up to nearly 90 percent of them. Sure, that’s not as dramatic as the machine-driven apocalypse. But at least it gives us an intriguing vision of a robotics-fueled agriculture industry.

**FIRST Global** organizes a yearly international robotics challenge to ignite a passion for Science, Technology, Engineering, and Mathematics (STEM) among the more than two billion youths across the world.
These improvements will be transferred over to the new expanded facility on the Bellingham waterfront that will allow Itek Energy to triple their production rates in the future over their current facility.

Contact us today to help start your own success story!

Established as a US-based 501(c)(3) not-for-profit public charity to provide the framework for an “Olympics”-style robotics challenge, FIRST Global invites one team from every nation to participate in an international robotics event that builds bridges between high school students with different backgrounds, languages, religions, and customs.

#1 Read Business Book on Amazon

Principles of Lean Manufacturing with Live Simulation - Kennewick, WA - March 23, 2018
Produce Safety Alliance Grower Course – Kennewick, WA - March 26, 2018
FSPCA Preventive Controls for Human Food Course – Yakima, WA - March 29 & 30, 2018
I-90 Aerospace Corridor Conference & Expo - Spokane, WA - April 25 & 26, 2018
Top Line Growth—Bottom Line Results Seminar and Workshop - Spokane Valley, WA - May 22, 2018
4TH ANNUAL FABREO FOOD & BEVERAGE EXPO - June 13 & 14, 2018

Learn About Our Made in Washington Program
Manufacturing is a vital arm of Washington's economy, and it's our mission to support and energize our local industry. The Made in Washington program is a free service to the community that certifies, promotes, and connects Washington State manufacturers. Check out our directory of Made in Washington businesses, or get certified and listed today! The program is at no cost to join and includes such benefits as listing in our on-line guide and use of the Made in Washington logo on your website. For more information or to
What types of grants are available? Would my business qualify for a grant? Find out more [HERE].

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