



April 2019

## *Did You Know...*

### **6 Ways to Boost Your LinkedIn Presence**

**1. Make Connections** - Encourage employees, customers, and suppliers to connect with you. There's no better way to grow your audience than to make connections. With each connection, you also wind up tapping into their network, and your Company Page will appear in their profiles.

**2. Post Valuable Content** - By publishing valuable content on a regular basis (LinkedIn recommends at least once per week) your posts will rise to the top of your followers' news feeds and get you noticed. You can also publish original newsworthy stories on the LinkedIn publishing platform to boost your presence.

**3. Publish Rich Content** - That means photos, video—anything not text-related. LinkedIn states that posts with an image receive 98% more comments. If you have a YouTube channel, you can also link to videos published there; they play automatically when someone is scrolling through their news feed to quickly capture attention.

**4. Join LinkedIn Groups** - Being an active participant in a LinkedIn group can show that you're both invested in your industry and are a thought-leader within it while growing your connections outside of those you already know.

**5. Use Showcase Pages** - Showcase Pages allow you to highlight a specific function of your company or a new initiative. It's just another way LinkedIn helps you to promote yourself. To create a Showcase Page, simply click the "Me icon" at the top of your LinkedIn Page, then choose your company page under the Manage section. Next, click "Admin tools" and select "Create a Showcase Page."

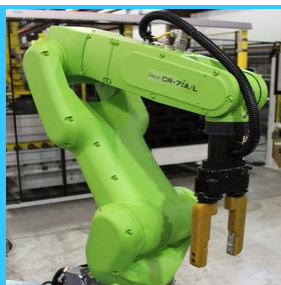
**6. Speak their language** - More than 70% of LinkedIn users are from outside of the US. So, if you're like many manufacturers who export to other countries, use LinkedIn's multi-language tools to attract users outside our borders. LinkedIn allows you to create custom descriptions of your company in 20 different languages. The right description will appear for each LinkedIn member based on the language settings they have chosen.

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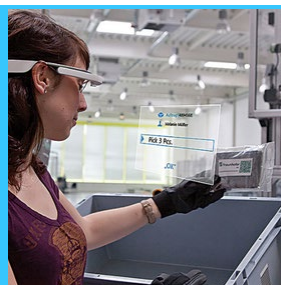
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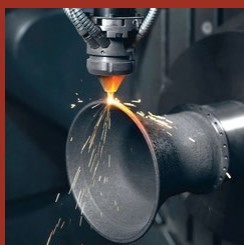
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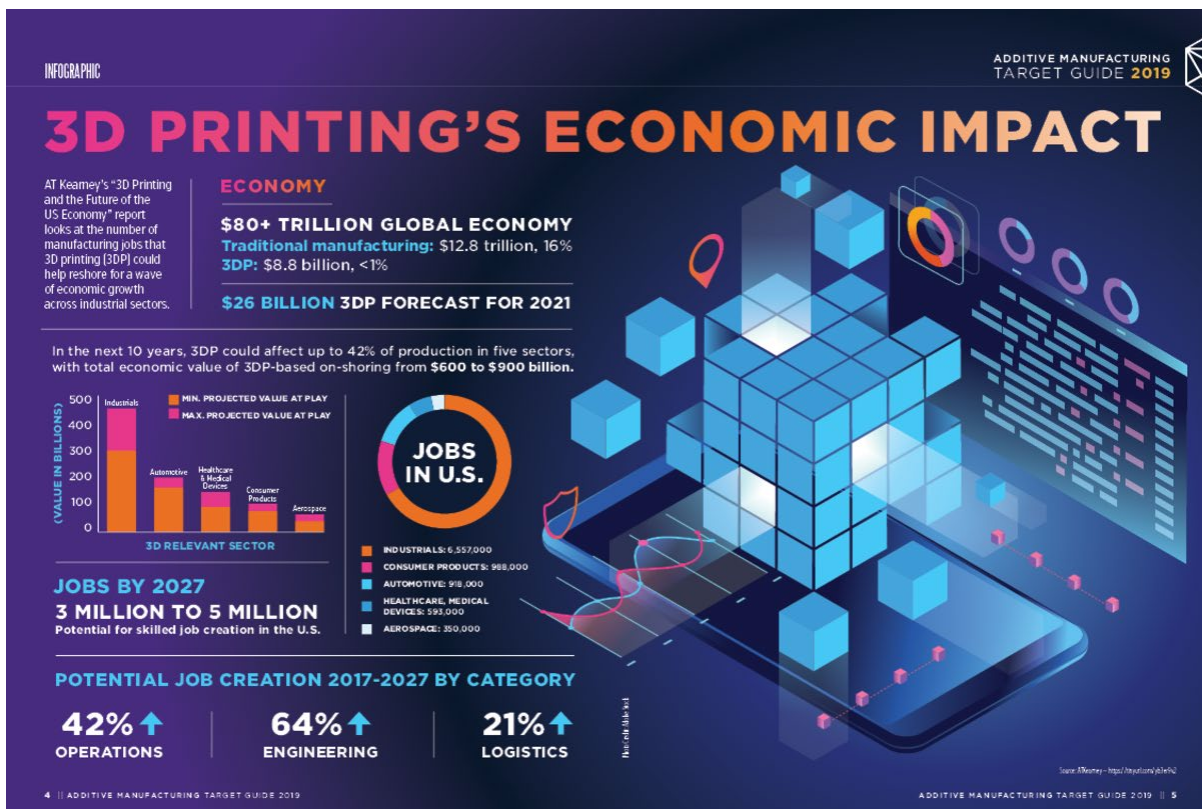


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### **What is Additive Manufacturing?**

Additive manufacturing (also known as 3D printing) uses computer-aided-design (CAD) files to direct hardware to deposit material, layer upon layer, in precise geometric shapes. As its name implies, additive manufacturing adds material to create an object. By contrast, an object created by traditional means, is made by removing material through milling, machining, carving, shaping or other means. This generates significant waste in the production process.



## BMW's new S58 engine features cylinder head made with 3D printing



A new engine was designed for BMW's M Division vehicles boasting a cylinder head produced using 3D printing. According to BMW, additive manufacturing enabled its engineers to realize the lowest possible weight for the cylinder head while optimizing its geometry for thermal management (it integrates coolant channels into its structure).

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## Additive Manufacturing

### Chris Wentworth

Chris is CMTC's Additive Manufacturing (AM) and product development expert. With over 20 years of experience in manufacturing, Chris brings a wealth of knowledge to small and medium-sized manufacturers. Chris is always happy to answer any questions you may have about AM or CMTC. Please contact Chris if you are interested in learning how Additive Manufacturing can help reduce manufacturing costs and reduce waste.



Email Me

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### **What is Advanced Robotics and Automation?**

Advanced robotics and automation consists of devices that act largely, or partly, autonomously, that interact physically with people or their environment and that are capable of modifying their behavior based upon sensor data. With advances in sensing and machine learning, today's robots are more intelligent, versatile, flexible, and steadily falling in cost. With collaborative robots (cobots), workers are able to safely interact with the machines that can now do repetitive, hazardous and ergonomically challenging tasks.

### **Join the CMTC Robotics Working Group**

We meet on a quarterly basis to promote the exploration & adoption of robotics and automation in our region!

#### **CMTC Robotics Working Group Charter:**

The purpose of the CMTC Robotics Working Group is to promote the exploration and adoption of robotics and automation. The Working Group will provide members with resources and information to determine how their organization could benefit from automation. Additional benefits:

- Participate in learning from experts in the field
- Share and learn from mutual challenges and exchange best practices
- Build professional relationships with peers, suppliers, integrators, and academics who work on automation and robotics

There is no cost to join the Working Group. For further information, contact Raminder Sandhu at [rsandhu@cmtc.com](mailto:rsandhu@cmtc.com). Please note: The Robotics Working Group is designed exclusively for Small and Medium-Sized Manufacturers.

### **The Future of Work: Hype vs. Reality**

A number of news sources have been sharing articles about robotics, automation and the disappearance of jobs. And some are downright scary —





like The Guardian's "Robots will take our jobs. We'd better plan now, before it's too late," that ran Feb. 1, 2018. A simple web search on the term "robots taking jobs" reveals over 33 million hits.

So, what's the truth? Should we be gearing up for a man vs. machine showdown? Before we get to that answer, let's review the facts.

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### **Can Machine Learning and Robotics Transform Tomorrow's Factories?**

Today's factories are largely single-task operations designed to produce one thing at massive scale. Assembly lines are set up to churn out the same products day after day, and industrial robots are tediously programmed for specific, repeatable tasks. Reprogramming those robots to take on different duties can take months or even years, which makes changing a factory's setup often an impossibility. But given consumers' increasing demand for mass customization, the ability to reconfigure a factory's setup will soon be that much more necessary for manufacturers. Fortunately, advancements in machine learning and robotics are revealing some interesting ways that industrial robots, and thus factories, might just be able to reprogram and reconfigure themselves. Watch the video to learn about some of this exciting research into machine learning and robotics.



## Advanced Robotics and Automation

### Raminder Sandhu

Raminder brings over 30 years of experience in manufacturing automation, engineering and technical sales to CMTC. He has worked at a diverse range of organizations, from Silicon Valley startups to Fortune 50 companies. In addition to Raminder's expertise, CMTC has developed relationships with key resource partners across the state from industry, economic development and academia to support the advanced robotics and automation needs of small and medium-sized businesses. Please contact Raminder if you are interested in learning how Advanced Robotics and Automation can fundamentally change how products are manufactured.



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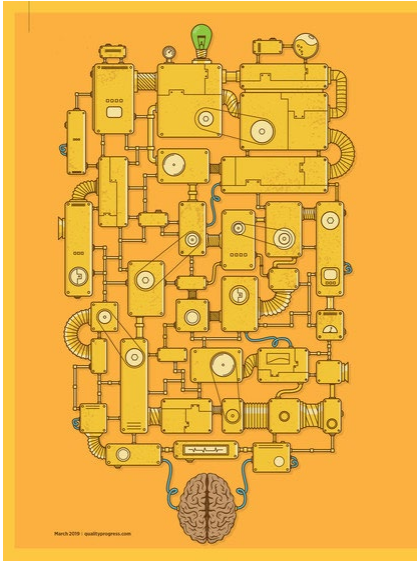


### What is SMART Manufacturing?

Smart Manufacturing consists of systems that are fully-integrated and collaborative that respond in real time to meet changing demands and conditions in the factory, in the supply network, and in customer needs. These systems take advantage of recent technical advancements and cost reductions in sensors, wireless components and computer

capacity. Smart Manufacturing has the ability to solve existing and future problems via an open infrastructure that allows solutions to be implemented at the speed of business while creating advantaged value.

## How to Maintain Quality in Automated Environments



Smart factories are poised to revolutionize the manufacturing world, and many organizations are already reaping the benefits of new technologies, such as machine learning and advanced analytics. In the quest for better and smarter technology, it should be remembered that quality must not be overlooked.

In the age of smart factories, quality is as important as ever. However, there must be a tectonic shift in the way we approach quality.

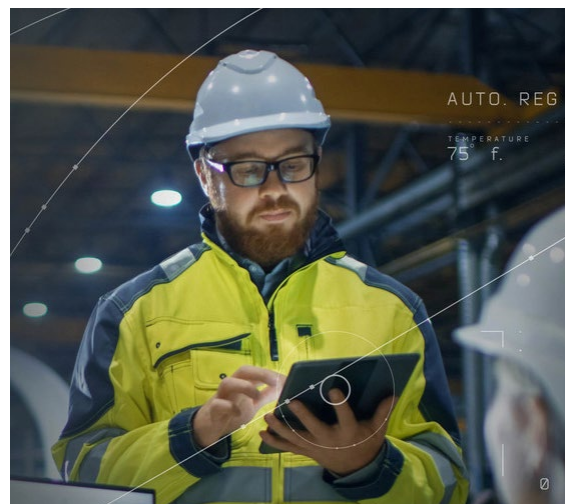
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## The End of Silos: How Industrial Connectivity is Transforming Engineering

New IIoT technologies and digital processes are taking collaboration and innovation to new levels. The result has the potential to dramatically improve operational efficiencies, increase uptime, and rein in R&D costs.

The Industrial Internet of Things (IIoT) paints an orderly picture of manufacturing. It offers a vision of the ideal state of equipment, security, and communication—all assets and processes seamlessly sharing data, sophisticated analytics programs facilitating production, and IT and Operations coordinating to make quick, data-driven decisions that improve the holistic production.

But that vision doesn't exactly match the true state of the industry. In reality, most manufacturing plants are composed of a broad ecosystem of new and old equipment from a variety of vendors,



all of which offer disparate functionality and different communication requirements. Pulling all of that data together is vital for a true and effective IIoT implementation. It is an essential step of the digitization process that will actualize the efficiency and productivity gains promised by the IoT—and determine the ROI on all the work involved.

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## SMART Manufacturing

### Shekhar Chandrashekar

Shekhar brings a strong background in technology and business leadership and deep knowledge of engineering management. He is a forward-thinking leader, strategist, and innovator with a history of driving process, system, and product improvements that streamline operations and increase profitability. Please contact Shekhar if you are interested in learning how SMART Manufacturing can help improve your profits and growth.



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### What is Flexible Hybrid Electronics?

Flexible Hybrid Electronics (FHE) combines the flexibility and low cost of printed plastic film substrates with the performance of semiconductor devices to create a new category of electronics. By adding electronics to new and unique materials that are part of our everyday lives, combined with the power of thin silicon integrated circuits to create conformable and stretchable smart products, FHE is ushering in an era of “electronics on everything” and advancing the efficiency of our world. By taking advantage of the ability to conform to organic shapes, electronic capability can now be incorporated into new and emerging consumer and industrial products.

## **SENSORS AND FHE NEED EACH OTHER: A LOOK INSIDE A KEY RELATIONSHIP**

Flexible hybrid electronics (FHE) and sensor technologies are a perfect match for each other.



Nearly every current application of FHE technology that either NextFlex or our partners are working on involve sensors, so it's beneficial for both platforms to grow and thrive alongside each other. Of course, these benefits ultimately carry down to the applications that use both FHE and sensors, such as chemical sensing systems and human health/fitness monitoring devices. When we drill down into this topic, it shows a unique symbiotic relationship that's critical to the development of next-generation manufacturing.

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## FlexFactor: Imagination and Innovation

Take a minute and think back to your high school days. Now that you have thought of some of your best memories and hopefully chuckled only a little, did any of those memories involve conceptualizing a product introduction that utilized a flexible circuit or rigidflex? I know mine didn't. I didn't give flexible circuitry much thought at all until I interviewed at a flexible circuit manufacturing company after graduating from college. Thankfully, I was hired for that job and my

early years in the printed circuit board industry were focused almost exclusively on flex and rigid-flex. One of my favorite phrases to this day came from that time: "Flex is really only limited by your imagination." I am from the generation that saw flexible circuit application ideas take off outside of military and aerospace work. I remember the insulin pump being developed, and medica equipment—such as hearing aids—becoming smaller, lighter, and more portable. Flex technology and the number of flexible circuit applications is advancing at a staggering pace.

With the demand for increasingly complex electronics, we see semi-additive processing, modified semi-additive processing, and flexible hybrid electronics technology (among others) advancing rapidly to meet those needs.

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## Flexible Hybrid Electronics

### Jens Paetau

Jens has over 25 years of Electrical Engineering and High Technology Sales Experience based out of Silicon Valley. He managed High Technology Semiconductor, IP sales, Telecom, Consumer Mobile, Wearable Development, Digital Health, IoT and IIoT, and followed Flexible Hybrid Technology for the last 7 years. Please contact Jens if you are interested in learning how Flexible Hybrid Electronics can help the manufacturing of electronics in higher volumes at lower costs.



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For questions or comments about this newsletter, please contact Steve Brand - Editor at [sbrand@cmtc.com](mailto:sbrand@cmtc.com).



**California's Manufacturing Network**

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