



January 2019

Did You Know...

5 Ways Organizations Can Increase Facebook Effectiveness

1. You Should Provide Useful Information - Your Facebook page shouldn't be entirely sales-y; that can turn people away. You'll want to be sure to complete your company's "About" section, of course, as this is the first place someone is bound to look when visiting your page. But, beyond that, give your audience valuable content to keep them following your page; for example, you may reach out to your customer service team to find out what types of inquiries they're getting from clients or customers, and then craft stories that answer them or pertain to them.

2. Personalize Your Page and Showcase Your Products - Here's where you show your "personality," so to speak. Keep it on the professional side, with photos of employees at work and play acceptable and encouraged. Mix in demonstrations on how your products are used and you're golden! In fact, multimedia posts—the use of visual content—generate 65% more engagement with followers.

3. Drive Traffic to Your Website - Have you seen a news story that affects your business, or just relates to what your company does? Link wall posts, notes, and discussions on the topic back to your website. This increases web traffic and boosts rankings in search engine results. Also, if you're on Twitter or LinkedIn (and you should be), cross-promote on these sites to drive more traffic.

4. Update Your Content Frequently—and Don't Post Too Often - Unfortunately, you can't just make a page and think it will go to work for you. It takes time, and often a Social Media Manager or third-party company to help. So, designate time to consistently update your site to keep followers interested. A word of caution: too much posting can be a turn off. Studies show that more than 60 posts per month is the point at which followers begin to feel overwhelmed. Quality of posts versus quantity of posts is crucial.

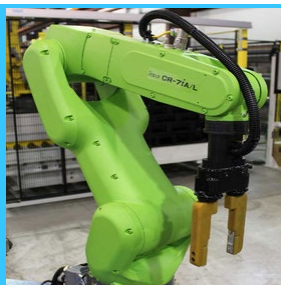
5. Engage Your Audience - Facebook isn't meant to be a one-way street. Encourage your followers to participate in discussions and always respond to both positive and negative feedback. Positives don't require much but a thanks, while negatives require more effort and thought.

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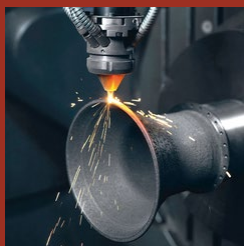
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What is Additive Manufacturing?

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.



America Makes Announces the Approval by the Department of Labor of the Additive Manufacturing Technician Registered Apprenticeship

America Makes and the Robert C. Byrd Institute (RCBI), in partnership with Tooling U-SME, the National Coalition of Advanced Technology Centers, and AST2, proudly announce that the U.S. Department of Labor's Office of Apprenticeship (OA) has officially approved their first-ever, industry-vetted Additive Manufacturing (AM) Technician Registered Apprenticeship.

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How Metal 3D Printing is 'Dramatically' Changing the Industry

3DEO is a small business based out of Gardena, CA, about 15 minutes from the LAX airport in Los Angeles. The company uses proprietary metal 3D printing technology to manufacture production components, primarily for applications in the aerospace, automation, defense, industrial, and medical industries. Production components, not prototypes. Right now, the company has eight of its proprietary metal 3D printers in a 13,000-square-foot facility, but the space could accommodate another 42 printers to meet demand.

[Click Here to to Read More and View the Video](#)

3DEO focuses on small and complex components built in stainless steel. If it falls outside of their niche, they pass on the project. The firm has 25 employees, and has worked on some impressive applications, all of which are under a non-disclosure agreement.

The company is also a part of the Make it in America program. Created by the Manufacturing Extension Partnership (MEP) at the National Institute of Standards and Technology (NIST), the Make it in America program was designed to highlight U.S. manufacturing.

HP Metal Jet Printer is Reinventing Metal AM

HP Metal Jet technology allows Parmatech to create unique metal products to solve their customers' needs in a time-effective manner, with no startup costs. The revolutionary technology allows them to produce 3D printed parts in a little as two days.



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.



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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. Please note: The Robotics Working Group is designed exclusively for Small and Medium-Sized Manufacturers.

An Introduction to Machine Vision Systems

Machine vision is the incorporation of computer vision into industrial manufacturing processes, although it does differ substantially from computer vision. In general, computer vision revolves around image processing. Machine vision, on the other hand, uses digital input and output to manipulate mechanical components. Devices that depend on machine vision are often found at work in product inspection, where they often use digital cameras or other forms of automated vision to perform tasks traditionally performed by a human operator. However, the way machine vision systems 'see' is quite different from human vision.

The components of a machine vision system can vary, but there are several common factors found in most. These elements include:

- Digital or analog cameras for acquiring images
- A means of digitizing images, such as a camera interface
- A processor

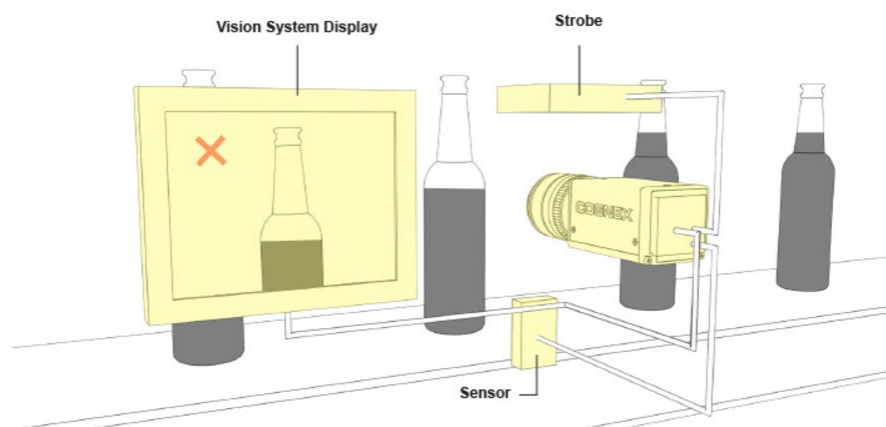


Figure 1. Bottle fill-level inspection example
The fill-level inspection system in this example permits only two possible responses, which characterizes it as a binary system:
1. Pass if the product is good
2. Fail if the product is bad.

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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.

NB-IoT vs. LoRa: It's an Ecosystem, Not a Race



As the number of connected devices rises, new technology standards have developed to handle the growing IoT space. While smartphones use cellular networks for their data, many IoT devices (for example, a smart water meter) only need to transfer small amounts of data. Relying totally on cellular or satellite networks would be expensive and use too much battery power for most devices. Similarly, WiFi and Bluetooth networks are not always a good or cost-effective solution. Most IoT devices don't need to be in constant contact with a cellular network, so a new type of network was needed. Enter the LPWAN.

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Servitisation: A new lease of life for manufacturers

At the very beginning of the year, the prognosis for the UK manufacturing sector was looking optimistic, with reports predicting the greatest period of productivity since the financial crisis. Big strides towards technology spending was at the heart of this trend, with many manufacturers adapting their business models to embrace Industry 4.0 technologies across factory floors.

As we now enter a phase—hopefully a short-lived one—where the latest figures show a slightly tougher operating environment for many UK manufacturers, we are likely to see that those who have invested well, will be best positioned to take advantage of new technologies and business models in order to gain a competitive edge, maintain market share and increase revenue.



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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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Flexible hybrid electronics have commercial Unmanned Aircraft Systems (UAS) Applications

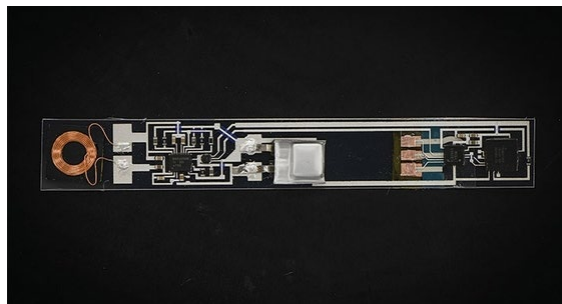
Flexible hybrid electronics—sometimes called peel-and-stick electronics—could soon be used to monitor the health of unmanned aircraft systems (UAS) operators and control drone flight, while also enabling UAS to carry electronics considered too heavy or bulky several years ago.

For example, Lockheed Martin Corp. is studying the use of 3D printed electronics that conform to the wing surface of its small, fixed-wing Desert Hawk unmanned aerial vehicle (UAV) to provide beyond-line-of-sight satellite communications. Two miniaturized phased-array antennas—one for transmitting and one for receiving—can be applied to each wing surface of the man-portable UAV using flexible hybrid electronics (FHE) technology.

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New Opportunities for Flexible Sensors: Medical wearables, Industrial Internet of Things are among the opportunities ahead for flexible sensors

Flexible sensors are an area of great interest in the flexible and printed electronics field. From medical sensors that can conform to the body to the billions of sensors that will be needed to power the Internet of Things, flexible sensors have the potential to be a thriving technology.



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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.



California's Manufacturing Network

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