

3D Printing: Customers Taking Charge of the Supply Chain

written by admin | April 18, 2016

The demand economy, when paired with the advent of 3D printing, is a true game changer for the manufacturing industry.

(IW - Michael Gravier: 4-12-16) The demand economy is disrupting every sector and causing those in the supply chain and manufacturing fields to be more innovative than ever before. A decade ago, consumers accepted waiting a week for their product but now with the infusion of companies such as Amazon and Alibaba, consumers are making their purchase decisions based on how quickly they will receive the product. In order to stay competitive in the marketplace, companies are turning to 3D printing to create their products quicker.

While it is true that manufacturing in certain locations can be low-cost, managing a global logistics network is not, especially as transportation costs continue to rise. That is where the opportunity for 3D printing lies. It is not surprising that analyst firm Canalys anticipates that the worldwide market for 3D printers and its associated materials and services will grow to \$20.2 billion by 2019.

Supply chains are about to make a fundamental shift. Where traditionally supply chains followed something like the SCOR model (plan, source, make, deliver, return), 3D printing is innovating that model and putting consumers in the driver's seat.

Make: 3D Printing Means Social Media

Globally, 3D printers seem likely to follow the same trajectory as mobile phones: many countries skipped installing expensive landlines and went directly to mobile technology, which requires less infrastructure investment and is more flexible and easier to upgrade. As with mobile technology, 3D printing means low infrastructure requirements, more mobility, more programmability and more adaptability. This

means nearly all of the 95% of world consumers that live outside of the U.S. will eventually access technology superior to our current production systems.

The two technologies—mobile technology and 3D printing—go together. Consumers will demand the ability to use their mobile devices to customize goods with nearly instantaneous delivery, and that means online presence, social media and analytics. Very few manufacturers right now have a social presence, meaning that the 3D printing revolution will likely continue the shift of power toward retailers like Amazon that already have online ordering systems popular with consumers.

Deliver/Return: Rise of the Robots

The 3D printing revolution also means the advance of robots, especially delivery drones and artificial intelligence. The first automated urban drone package delivery happened on March 25th. TraPac LLC's Los Angeles terminal already has two dozen robots moving containers. Even formula racing is starting a Roborace division later this year. In addition to automating repetitive and detail-oriented tasks, robots and drones need less infrastructure and require minimal waste. Reliance on human drivers means having a vehicle big enough to carry the human, at which point investment costs require greater economies of scale by accumulating enough packages to pay for both truck and driver.

Drones can be sized just big enough to transport a package. Self-driving trucks will still require highways, but smaller, airborne drones delivering the "last mile" will mean reduced congestion, faster deliveries, and less expensive infrastructure to maintain—not to mention other benefits like delivery straight to the customer rather than to a physical address.

Source: Gets a Lot Easier

Today's supply chains suffer from global sprawl, with months required to design and source components, and then assemble them into a finished product. Much of the time and expense in supply chains derives from the need to negotiate with and

monitor suppliers. All this is made worthwhile due to the benefits of accessing specialization and competitive advantages from around the world.

The specialization and economic benefits of globalization become outdated in a world where a 3D printer and some spools of wire or other generic inputs can make nearly any desired product relatively quickly. Generic inputs require far less negotiation and planning. They also do not become obsolete and the quality is standardized, meaning that there's less need to monitor supplier performance. Since nearly all value is added by the 3D printer and inputs are relatively low value, standardized commodities, Just in Time Inventory (JIT) and other inventory reduction approaches will be needed less.

Plan: The Consumer Takes Charge

3D printing's most amazing impact will be how it puts consumers in charge of the supply chain—and most companies are not ready. The old supply chain reference models put the company in charge of nearly the entire supply chain: developing new product offerings, sourcing all components, overseeing manufacturing and assembly, and finally distributing products to the retail level. The customer only gets to order the product after all the work is done, choosing among available offerings. In this model, companies take a huge gamble on whether and how many of a product they will sell, leading to waste and diminished profitability.

3D printing means a greatly simplified, highly responsive, and infinitely flexible supply chain fulfills the order. In the future supply chain, the customer places the order first, and then a local, highly automated 3D printing shop produces the finished product and then delivers it, often via drones. Rather than plan, source, make, deliver, and return, a future supply chain model will start with the consumer order which will initiate make, deliver and return.

The demand economy is disrupting every sector and when paired with the advent of 3D printing, is a true game changer for the manufacturing industry. It should be a warning sign for companies that if they don't innovate their supply chains, they may become irrelevant as consumers will have more control of the production of their

own products.

(Michael Gravier is an associate professor of Marketing and Global Supply Chain Management at Bryant University with a focus on logistics, supply chain management and strategy and international trade.)

Bipartisan bill from Senators Coons, Ayotte & Peters would support America's small manufacturers

written by admin | April 18, 2016

Bill would expand and improve a key federal program supporting small to medium-sized manufacturers in all 50 states

(Press Release - Office of Senator Chris Coons: 4-12-16) U.S. Senators Chris Coons (D-Del.), Kelly Ayotte (R-N.H.), and Gary Peters (D-Mich.) today introduced the *Manufacturing Extension Partnership Improvement Act*, which would expand and improve the MEP program to better serve small to medium-sized manufacturing companies. The Hollings Manufacturing Extension Partnership (MEP) is the only public-private partnership dedicated to providing technical support and services to small and medium-sized manufacturers.

“Manufacturing is the driving force behind America’s ability to innovate and is critical to our prosperity and competitiveness,” said Senator Coons. “The MEP program is one of the best resources for America’s manufacturing community and has helped countless businesses in Delaware and across the country grow and create jobs. This bill will expand the MEP program to better serve more small and medium-sized manufacturing companies that fuel our nation’s economic growth.

Now is the time to invest in American manufacturing.”

*“New Hampshire is a leader in the field of manufacturing and that is due in large part to the work of Zenagui Brahim and the rest of the team at the New Hampshire Manufacturing Extension Partnership (NH MEP). That’s why I’m proud to work across the aisle with my colleagues, Senators Coons (D-DE) and Gary Peters (D-MI), to introduce the Manufacturing Extension Partnership Improvement Act,” **said Senator Ayotte.** “We have so much potential for growth, and this bill will allow the NH MEP to create partnerships with local universities to start apprenticeship programs. The bill focuses on all aspects of the manufacturing industry and also provides a mechanism for NH MEP to assist New Hampshire’s smaller manufacturers. New Hampshire’s future for manufacturing is incredibly bright, and this bill will help maximize that potential. ”*

*“A strong, vibrant manufacturing sector is a critical part of our economy, and the MEP program helps ensure that American manufacturers can continue to grow and provide good-paying jobs in the United States,” **said Senator Peters.** “I’m proud to join my colleagues to introduce this bipartisan legislation that will help MEP centers provide better support to small and mid-sized companies so they can continue to drive innovation and bolster our economic competitiveness around the world.”*

*“The Manufacturing Extension Partnership helps U.S. companies produce and market Made in America goods throughout the world,” **Scott Paul, President of Alliance for American Manufacturing.** “The MEP Improvement Act will make important reforms that will further benefit American workers and companies. The MEP’s supplier scouting program links American-made goods with government procurement projects that are covered by Buy America preferences. This is smart policy, as it ensures American workers get the first shot at supplying products for these projects. That creates jobs and keeps taxpayer dollars here at home. We thank Sens. Coons, Ayotte, and Peters for introducing this legislation, and hope Congress takes swift action to pass it.”*

*“AMT proudly supports the Manufacturing Extension Partnership Improvement Act,” **said Douglas K. Woods, President, AMT - The Association For Manufacturing Technology.** “This bipartisan bill, introduced by Sens. Coons, Ayotte and Peters,*

will not only modernize the MEP program model to make it more efficient and valuable to manufacturers; it will also expand the scope of MEP centers to include access to manufacturing trends, tools, and technology — resources small and medium-sized manufacturers often don't have the capacity to find. AMT is a longtime supporter of the MEPs, and on behalf of AMT's more than 600 U.S.-based companies, I urge Congress to support this legislation."

*"The American Small Manufacturers Coalition (ASMC) strongly supports the MEP Improvement Act because it provides necessary program resources and technical changes that MEP needs to help American small manufacturers remain competitive in the global marketplace," **said Carrie Hines, President & CEO, ASMC.** "Other countries with programs similar to MEP routinely outspend the United States in its federal support by as much as 12:1. The MEP Improvement Act provides an increased authorization level and cost share reduction that will allow the program to remain competitive with its international counterparts, so that it may reach more rural and small manufacturing clients, which make up the fabric of local economies and communities."*

The MEP program is the premier federal program addressing critical needs of small and medium-sized manufacturers. MEP centers offer resources that enable manufacturers to compete globally, support greater supply chain integration, and provide access to information, training, and technologies that improve efficiency, productivity, and profitability.

Built on a nationwide network of centers located in all 50 states and Puerto Rico, the MEP program is a partnership between the federal government and a variety of private sector entities that serve as trusted business advisors and technical experts to a variety of small to medium-sized manufacturers.

The *Manufacturing Extension Partnership Improvement Act* would:

- Permanently adjust the federal MEP cost share to one-to-one.
- Strengthen and clarify the MEP Center review process and require re-competition of MEP Center awards every 10 years.
- Authorize MEP Centers to support the development of manufacturing-related apprenticeship, internship and industry-recognized certification

programs.

- Increase the MEP program authorization level to \$260 million per year through 2020.
- Require the MEP program to develop open-access resources describing best practices for America's small manufacturers.

The bill has been endorsed by Information Technology and Innovation Foundation; American Small Manufacturers Coalition; Alliance for American Manufacturing; Honda North America, Inc.; Association for Manufacturing Technology; National Council for Advanced Manufacturing; Manufacturing Skill Standards Council; and Delaware Manufacturing Extension Partnership.

State of the Global Supply Chain

written by admin | April 18, 2016

The State of the Global Supply Chain Report is an analysis of the top issues, challenges and opportunities faced by manufacturers and industry executives for 2016 and beyond.

(SupplyChain 24/7: 4-11-16) GT Nexus set out to discover the top supply chain issues facing manufacturers for 2016 and beyond. We did so by partnering with researcher, *YouGov*, a global online community of over four million individuals, to see where senior manufacturing executives stand on things like:

- The technologies and industry issues that have the most notable impact on the supply chain
- Their primary supply chain challenges and goals for improvement
- Whether or not they have a Chief Supply Chain Officer in place to help manage the above

The results indicate that manufacturers expect to face major supply chain challenges and risks in 2016 stemming from external factors, often beyond their control.

While meeting ever-changing customer demand is deemed a priority, the data suggests their execution roadmap is misguided, being focused more on cost cutting than other things like having a senior supply chain leader in place.

This starts at the top level, where 76% of manufacturers operate without a Chief Supply Chain Officer.

With almost half of manufacturers reporting a disruption that impacted business in the past 12 months, this gap in strategic direction to address broader supply chain agility appears to be a major concern.

The sample size for our study was 250 US-based senior manufacturing executives, and fieldwork was undertaken in December 2015 via an online survey.

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Why a Sustainable Supply Chain Is Key to Staying Competitive

written by admin | April 18, 2016

**(Environmental Leader - Jessica Lyons Hardcastle: 4-11-16)
Apple's latest supply chain audit report shows its push for more rigorous environmental standards and renewable energy production across its supply chain is working: suppliers in 2015 diverted more than 73,000 metric tons of waste from landfills and saved more than 3.8 billion gallons of freshwater.**

Other companies should take note, and look for ways they can improve their supply chain sustainability to stay competitive.

The tech giant conducted 640 audits across its global supply chain last year — a 1 percent increase from 2014 and a 41 percent increase from 2013 — in its efforts to improve environmental sustainability, working conditions and transparency.

As an example: Foxconn Zhengzhou, one of Apple's final assembly facilities for iPhones, partnered with Underwriters Laboratories to help the Chinese plant improve its waste management. Working with UL, the company discovered 80 percent of the facility's total waste was generated by production, so local managers created a system to increase recycling and worked with parts vendors to improve packaging. The efforts allowed Foxconn Zhengzhou to divert 40 percent of previously landfill-bound waste for recycling and sent much of the remaining waste to waste-to-energy facilities.

As of early 2016, Foxconn Zhengzhou is 96 percent landfill-free and has set a goal to be 100 percent landfill free by the end of this year.

Also in the report: in the first year of the company's energy efficiency program, suppliers at 13 sites prevented more than 13,800 metric tons of carbon emissions through replacing outdated or inefficient heating, cooling, and lighting systems, repairing compressed air leaks, and recovering and redirecting waste heat.

Last year 100 percent of process chemicals at all final assembly facilities were free of "Apple-prohibited substances" — these are hazardous chemicals identified by Apple's Regulated Substances Specification list that the company prohibits or limits in manufacturing. Apple says now it's working to identify these chemicals at its non-final assembly facilities.

"We're proud of the progress we've made so far," writes Apple COO Jeff Williams, in a letter at the beginning of the supplier responsibility report. "Yet even as you read this, Apple continues to address challenges throughout the supply chain. We are openly working with industry partners, governments, NGOs, and others who share our vision of improving lives and caring for the environment."

The news of Apple's supply chain audit has — or should have — other companies looking for ways that they can work with suppliers to improve their environmental performance. As the same time, growing demand for natural resources like water,

minerals and oil puts a stain on supply, making it harder for companies that want to implement sustainable practices and materials in the supply chain.

Despite the challenges involved with improving environmental sustainability and transparency in the supply chain, Hans Thalbauer, senior vice president of extended supply chain management at global software developer SAP, says sustainability is becoming an increasingly important aspect in business management.

In an interview with Environmental Leader, Thalbauer said there are three major components companies should look at to improve supply chain sustainability: raw materials used, the treatment of people who make the products and supply the services — as well as how operations affect people in the local communities — and overall compliance with laws and regulations as well as consumer and investors' expectations.

"It is important to understand what raw materials are being use, if the raw material is scarce and if so, what would be the impact if this material was not available going forward," Thalbauer says. "Water, for example, is driving a lot of innovation in the entire manufacturing sector, with companies trying to reduce water consumption during production. But it also goes back to innovations that use less water for the product itself. So especially for the food and chemical industries, a lot of products are emerging in the market place that have reduced water content in the product itself."

Reducing emissions and waste, and conserving water are easier when confined within a company's own walls. But leading companies can take a page from Apple's playbook and continue pursuing environmental sustainability goals across the supply chain.

Says Thalbauer: "Sustainability as a topic is not new. It has been discussed now for more than a decade; however, in talking with many companies around the world we see *sustainability is coming up higher in the list of extended supply chain priorities.*"

Pennsylvania Governor's Occupational Safety & Health Conference

written by admin | April 18, 2016

SAVE THE DATE!

Mark your calendar for October 31 - November 1, 2016, and we'll see you at the Hershey Lodge and Convention Center for the 90th annual Governor's Occupational Safety & Health Conference (GOSH).

Since 1926, the GOSH Conference has educated and empowered safety professionals, employers, and employees. Our mission is to reduce accidents and injuries for workers across all industries and occupations by presenting a series of workshops that address current safety best practices.

Registration Fees:

- Full Conference Attendee = \$200
- 8 x 10 exhibit = \$575

Registration will open in early June.

AME announces Spring events

written by admin | April 18, 2016

AME Mid-Atlantic Newsletter

Obama Administration Announces New Revolutionary Fibers & Textiles Manufacturing Innovation Hub

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(SSTI: 4-1-16) The eighth manufacturing innovation institute brings over \$300 million in public-private investment from leading universities and manufacturers to develop futuristic fabrics and textiles, helping accelerate the revival of textiles manufacturing in the United States. Today, Secretary of Defense Ash Carter announced that a leading consortium of 89 manufacturers, universities, and non-profits organized by the Massachusetts Institute of Technology (MIT) will spearhead a new manufacturing innovation institute in partnership with the Department of Defense focused on securing U.S. leadership in revolutionary fibers and textiles manufacturing. The new Revolutionary Fibers and Textiles Manufacturing Innovation Institute in Cambridge, MA, will combine over \$75 million of Federal resources with nearly \$250 million of non-Federal investment in innovative fabrics and textiles with novel properties ranging from being incredibly lightweight and flame resistant, to having exceptional strength and containing electronic sensors. With wide-ranging applications, these technical textiles can forge protective gear for firefighters impervious to the hottest flames, replicate the sensing capabilities of a smart watch into a lightweight fabric, or detect when a wounded soldier needs to be treated with an antimicrobial compression bandage.

ISM Index Points to First U.S. Manufacturing Growth Since August

written by admin | April 18, 2016

According to at least one analyst, “the worst is over,” and “manufacturing will be less of a drag on the economy.”

(IW - Shobhana Chandra: 4-1-16) While manufacturing jobs dropped precipitously for March, manufacturing somehow still expanded for the first time in seven months, fueled by a surge in orders that signals American factories are emerging from their worst slump since the last recession.

The Institute for Supply Management’s index climbed to 51.8 from 49.5 in February, figures from the Tempe, Ariz.-based group showed Friday. It was the first time since August that the gauge exceeded 50, the dividing line between growth and contraction.

Factory bookings were the strongest since November 2014 and a measure of production reached a 10-month high as companies made further progress getting inventories in line with sales. The outlook for manufacturing is a bit brighter following a recent recovery in commodities prices and a tempering of the dollar’s strength.

“The worst is over,” said Harm Bandholz, chief U.S. economist at UniCredit Bank AG. “The rebound in the sentiment data avoids a self-fulfilling negative spiral” and it means “manufacturing will be less of a drag on the economy.”

Twelve of 18 industries surveyed by the purchasing managers’ group posted growth, including printing, furniture, machinery and plastics. The ISM index was the strongest since July and exceeded the Bloomberg survey median forecast of 51.

Economists' estimates ranged from 48 to 53.2.

"There looks like a lot of momentum," Bradley Holcomb, chairman of the ISM factory survey, said. "Let's be careful to note this is just one month after five months of contraction," he said, adding there is "every reason to be confident about the next few months."

Signs manufacturing is "moving in the right direction" include supplier deliveries showing tightness in the supply chain, customer inventories that are too low, growing backlogs and improving exports, Holcomb said.

The new orders gauge increased to 58.3 from 51.5, and a measure of production rose to 55.3 from 52.8. Thirteen of 18 industries reported a pickup in March bookings. The index for orders waiting to be filled advanced to 51 from 48.5. One weak spot in the report was the factory employment measure, which decreased to 48.1 from the prior month's 48.5.

The index of export orders rose to 52, from 46.5. That marked the biggest jump since April 2011. The gauge of factory inventories edged up to 47 from 45, and customer stockpiles rose to 49 from 47.

The index of prices paid surged 13 points, the most since August 2012, to 51.5. It was the first time since October 2014 that the measure indicated rising prices.

SBDC GrowSmart - Expertise for Growing Businesses

written by admin | April 18, 2016

SBDC *GrowSmart* is a dynamic program for owners and senior managers of growing businesses.

The program is designed for leaders of companies with:

- At least two years of successful operation
- Annual revenues of \$300,000 or more
- The opportunity and desire to grow

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2016 Global Manufacturing Competitiveness Index

written by admin | April 18, 2016

The 2016 Global manufacturing competitiveness index reveals country rankings and competitiveness drivers through a survey of more than 500 of the world's leading manufacturing CEOs and senior executives.

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