

IMS HOSTS FIRST WORLD MANUFACTURING FORUM REGIONAL EVENT IN JOHANNESBURG, SOUTH AFRICA



IMS hosted the first World Manufacturing Forum regional event in Johannesburg, South Africa on June 18th, 2018. The event, “Manufacturing Revolution to Promote Global Resilience,” took place in conjunction with the Manufacturing Indaba at the Sandton Convention Center. The session aimed to address how the industrial transformation inspires education, sustainable development, and societal impact. IMS Managing Director and WMF Board Member, Dan Nagy, began the program by introducing the new World Manufacturing Forum Foundation. He noted that the WMF will now expand to include an annual Global Report along with regional events and new involvement opportunities. He also presented global partners UNIDO, the European Commission, and Regione Lombardia and previewed the 2018 program which will be released at the end of July. Professor Marco Taisch of Politecnico di Milano and WMF Scientific Chair presented the WMF Global Manufacturing Report. He explained that the report will be white paper on the future outlook of manufacturing and will include expert opinions from industry innovators. The report will also outline 10 key short and long term recommendations for industry.

The program continued with two expert panels, Session One: “Policies Advancing Manufacturing Development and Global Cooperation” and Session Two: “Solving

the Manufacturing Skill Challenge: Creating a Skills Marketplace.” Session one focused on how to harness the full potential of the fourth industrial revolution to boost competitiveness in the global manufacturing industry by reinforcing international cooperation, promoting investment, and advancing the proper application of technology. Session two discussed how information on job evolution and skill requirements are used by South Africa to review and renew and develop

5,000 € PRIZE: WMF VIDEO CONTEST



The 2018 World Manufacturing Forum is holding its first annual Video Contest. Participants are asked to create a short video clip to describe Manufacturing and the Digital Revolution. Freelance video makers, universities, schools (over 16 students), and operators of the creative industry from all around the world are encouraged to apply. Submitted videos must have a maximum length of three minutes and be in English (audio or subtitles are accepted). The three contest finalists will be invited to participate in the final selection. The final selection will take place during the World Manufacturing Forum 2018 (27-28 September, Villa Erba, Cernobbio – Italy), where the three videos will be projected in loop during the 2 day event. The videos will be voted upon by the World Manufacturing Forum audience. The winner will receive a prize of 5,000 €. Submissions are open from now until the end of July, 2018. For more information please visit:

www.worldmanufacturingforum.org/video-contest

their education and training systems. Panelists also discussed development of a national framework to support coordination between education and training, skilled workers, and the labor market to create a skills marketplace.

Audience members were able to ask panelists questions during Q&A periods and were invited to a networking and collaboration coffee. All those in attendance were invited to attend the 2018 edition of the WMF.

The World Manufacturing Forum annual meeting will be held in Cernobbio (Como), at Villa Erba, on September 27th and 28th 2018.

IMS GUIDEBOOKS 1-6 ARE NOW AVAILABLE

The IMS ManuVation Guidebook Series numbers one through six are now available online. The ManuVation Guidebook Series are a resource available to all IMS members that help to outline best practices and resources for small-to-medium enterprises (SMEs). The first six installments cover topics including: Advanced Manufacturing; Virtual Reality and Augmented Reality; Robotics and Automation; Enterprise Resource Planning; Digital B2B Platforms; and Data Analytics. These are the first of six in a nine-issue installment. You can read the IMS guidebooks on www.ims.org/publications

UPCOMING EVENTS

South Carolina Manufacturing Conference

Join IMS for a panel and visit our booth at the 2018 South Carolina Manufacturing Conference at the TD Convention Center in Greenville, South Carolina on **September 11-12, 2018**. For more information and to register for the event please visit: www.scmanufacturingconference.com

World Manufacturing Forum 2018

The 2018 World Manufacturing Forum: Manufacturing Revolution to Promote Global Resilience will take place from **September 27-28, 2018** at the Villa Erba in Cernobbio, Italy. Register now for the forum on our [website](#).

Gauge Finds China Manufacturing Slowed in June

(Market Watch – Staff: 7-1-18) Growth in China's manufacturing sector slowed in June, according to a private gauge, tallying with official data that showed a slight cooling of growth in manufacturing activity on the back of simmering trade tension between the U.S. and China. The Caixin China manufacturing purchasing managers' index slipped to 51.0 in June, from 51.1 in May, Caixin Media Co. and research firm Markit said on Monday. The 50 level separates an expansion in manufacturing activity from a contraction.

The subindex of production continued to rise in June with the rate of growth edging up to a four-month high, Caixin said. However, new export sales fell for the third month in a row and remained in contraction territory amid the escalating trade dispute between China and the U.S., it added. "Deteriorating exports and weak employment, along with companies' destocking and poor capital turnover, put pressure on the manufacturing sector," Zhengsheng Zhong, an economist at CEBM Group, said in a statement accompanying Monday's release. China's official manufacturing PMI dropped in June due to slower production and weakening demand, according to data released by the National Bureau of Statistics on Saturday. The Caixin China Manufacturing PMI is based on data compiled from monthly replies to questionnaires sent to purchasing executives at more than 400 manufacturing companies. Compared with the official gauge's coverage of firms including large state-owned companies, the Caixin PMI tends to track small, private manufacturers more closely.

What is Manufacturing 5.0?

(Manufacturing.net – Kayla Matthews: 6-28-18) Industry 4.0, which was long overdue, changed the manufacturing game for the better. It was all about making systems and processes smarter, more efficient and more precise through the application of modern technology. Because Industry 4.0 heavily favors automation and unprecedented levels of productivity, many companies have now adopted technologies such as the IoT, AI, big data, remote and cloud computing and advanced robotics. The term Industry 4.0 refers to [the fourth industrial revolution](#), hence the name. Of course, some companies and organizations are still working out the particulars of 4.0's resulting transformation. For anyone who hasn't adopted these technologies, 4.0 is still very much in the now.

However, many companies at the forefront of technology have already moved on to the next generation: Industry 5.0.

The easiest way to explain 5.0 is that it takes the automated and efficient concept and injects it with a traditional, personalized human touch. Adopting more conventional human-based setups might sound like a step back, but there's a good reason for it. It's less a move backward or transformational shift — such as 4.0 — and more a merger or collaborative operation.

The Beauty of Flexible Manufacturing

(Factory Automation – Aaron Hand: 6-26-18) Mass customization is a phrase that we're becoming increasingly familiar with in manufacturing, particularly within consumer goods. Connected consumers—with ever-increasing and rapidly changing demands—are dictating a whole new level of flexibility and connectedness from manufacturers. This trend is arguably no more apparent than it is in the beauty industry. In a presentation at the [North American Manufacturing Excellence Summit](#) (NAMES), going on recently outside Chicago, Carlos Ruiz, vice president of operations and head of North American manufacturing for [L'Oréal](#), painted a picture of the flexible production needed for changing demands and individualized products. "We work in an environment that is very, very fast-paced," Ruiz said. "Everybody's asking for something different, something specific for them." It's work in progress. The same connectedness that consumers are using to see the latest products available is providing L'Oréal with the data the company needs to react more quickly to consumer demand and to get the end-to-end information it needs in its supply chain.

A Small Manufacturer Solves the Cybersecurity Puzzle

(IW – David Boulay: 6-25-18) Atlas Tool Works is a small family-owned company that provides specialized machining and turning of tight tolerance parts, precision sheet metal fabrication, metal stamping, and complex engineered assemblies. It has 72 employees, and a long history of commitment to quality and continuous improvement. Atlas leadership knew they needed to improve their cybersecurity. The company, being part of the U.S. Department of Defense supply chain, was required to comply with the Defense Federal Acquisition Regulation Supplement (DFARS) minimum security standards or risk losing their DoD contracts. Leaders also realized that improving the company's overall cybersecurity would protect the confidentiality,

integrity, and availability of information. Lacking a full-time information technology staff, Atlas Tool Works needed support to decipher the guidelines, perform an assessment, identify gaps, and execute the improvements before the December 31, 2017 compliance deadline. Atlas contacted the Illinois Manufacturing Excellence Center (IMEC), its local representative for the Manufacturing Extension Partnership (MEP), for assistance.

Tomorrow's Factories Will Need Better Processes, Not Just Better Robots

(HBR -- [Ron Harbour](#) and [Jim Schmidt](#): 6-21-18) When people think of the automotive Factory of the Future, the first word that comes to mind is automation. They think of the "lights-out" factory that General Motors Chief Executive Roger Smith fantasized about in 1982 and Elon Musk talks about building today—plants so dominated by robots and machines that they don't need lights to work. There's no doubt that the auto industry will continue to vigorously pursue automation solutions to lower the cost of producing cars. But the reality is that any major leap forward on cost and efficiency will no longer be possible through automation alone, since most of the tasks that can be automated in an automotive factory have already been tackled. When a real Factory of the Future arrives, it will not look different because we have automated the processes we use today. It will look different because we will have invented entirely new processes and designs for building cars requiring entirely new manufacturing techniques.

Mazak Starts Up New Smart Factory

(American Machinist – Staff: 6-21-18) Machine-tool builder Yamazaki Mazak Corp. has started assembling its Variaxis Series five-axis vertical machining centers and Versatech Series five-axis double-column machining centers at a new plant in Japan, it's sixth in that country and the 11th it has established worldwide. The 56,000 m2 plant at Inabe City, southwest of Tokyo, was announced in 2016 and is targeted to be fully operational by 2019. The new plant reportedly represents a \$176 million capital investment. Once complete, it will replace the assembly operations now carried out at the Seiko Plant in nearby Kuwana City. The latter operation will serve as a machining center in support of the newer plant. In line with much of Mazak's global technology strategy, the Inabe facility is outfitted with advanced monitoring functions that support Industrial Internet of Things (IIoT) protocols. It

is a greenfield version of Mazak's iSmart Factory concept, which uses advanced manufacturing cells and production systems to maximize productivity and flexibility, with "free-flow data sharing" for machine and process control monitoring. The goal is to optimize manufacturing by coordinating all available technology information, and resources, in line with IIoT theories.

Looming Threats in the Raw Material Supply Chain

(Supply Dynamics Insights – Erin Kutcher: 6-20-18) From sanctions to tariffs, aerospace manufacturers are "flying blind" when it comes to understanding the risks of the raw material supply chain. With the global aerospace industry consuming 1.7 billion pounds of raw materials across all levels of the supply chain, aerospace analyst and [Aviation Week](#) columnist Kevin Michaels discusses this all-encompassing issue with Supply Dynamics' CEO, Trevor Stansbury in the Aviation Week editorial "Threats Loom For Aerospace Raw Material Supplies." Michaels observes that "there are many worries as the commercial aerospace supply chain ramps up to unprecedented production rates. Can aeroengine OEMs fix their new-engine teething problems? Can interior suppliers step up? Is there enough forging and casting capacity? Yet uncertainty in raw material supply could be the largest threat of all due to booming demand, tariffs, and geopolitics." With the Trump administration tariff on steel and aluminum as the catalyst, raw material supply [uncertainty emerged](#) in March followed quickly by April sanctions against Ole Deripaska, aluminum producer Rusal's largest shareholder.

HPE Unveils World's Largest Supercomputer

(TechRadar – Mike Moore: 6-19-18) HPE has revealed the world's largest Arm-powered supercomputer as part of a major HPC project. The computing giant has teamed up with the US Department of Energy (DOE) and Sandia National Laboratories to create the new Astra system as part of the DOE's Vanguard project. Astra, which is built of over 145,000 cores in 2,592 dual-processor servers, will be used by the US National Nuclear Security Administration (NNSA) to run advanced modeling and simulations across a number of areas, including energy and national security.

Harnessing the Power of ERP and MES Integration

(IW -- Yuval Lavi: 6-18-18) In today's competitive global markets, a lean manufacturing process is more important than ever. Sharing information between the

manufacturing floor and business systems can enable manufacturers to achieve new levels of efficiency. With the industrial Internet of Things (IoT) revolutionizing manufacturing by leveraging intelligent, connected devices in factories, there are even more opportunities to fine-tune operations with better data and process integration. In a recent survey by Accenture of more than 1,400 global business leaders, 84% asserted that they could create new income streams from implementing IoT solutions. BI Intelligence expects the installed base of manufacturing IoT devices to swell from 237 million in 2015 to 923 million in 2020 when manufacturers will spend about \$267 billion on the IoT. Indeed, the anticipated efficiency returns from digitization over the next five years across all major industrial sectors are substantial: nearly 3% in additional revenue and 3.6% in reduced costs per year, according to a recent PwC survey. By proactively leading the digitization effort, industrial manufacturers can earn a growing portion of these gains.

PTC and Rockwell Automation Announce Strategic Partnership to Drive Industrial Innovation and Accelerate Growth

(Rockwell Automation Press Release: 6-11-18) PTC and Rockwell Automation today announced that they have entered into a definitive agreement for a strategic partnership that is expected to accelerate growth for both companies and enable them to be the partner of choice for world-wide customers who want to transform their physical operations with digital technology. As part of the partnership, Rockwell Automation will make a \$1 billion equity investment in PTC, and Rockwell's CEO Blake Moret will join PTC's board. The partnership leverages both companies' resources, technologies, industry expertise, and market presence, and will include technical collaboration across the organizations and joint global go-to-market initiatives. PTC and Rockwell Automation have agreed to align their respective smart factory technologies and combine PTC's award-winning ThingWorx[®] IoT, Kepware[®] industrial connectivity, and Vuforia[®] augmented reality (AR) platforms with Rockwell's best-in-class FactoryTalk[®] MES, FactoryTalk Analytics, and Industrial Automation platforms. The result will be an unmatched integrated information solution that will enable customers to achieve increased productivity, heightened plant efficiency, reduced operational risk, and better system interoperability.

ISM May Manufacturing Report is Strong

(Logistics Management -- Jeff Berman: 6-6-18) May manufacturing activity continued to head in the right direction, according to the Institute for Supply Management's (ISM) Manufacturing Report on Business. ISM said that PMI, the report's key metric, increased 1.4% in May to 58.7 (a reading of 50 or higher indicates growth). This marks the 21st consecutive month of PMI growth, with the overall economy now having grown for 109 straight months. The May PMI reading is 1.1% even with the 12-month average of 58.7. ISM said that 16 of the 18 sectors it tracks experienced growth in March, including: Textile Mills; Nonmetallic Mineral Products; Electrical Equipment, Appliances & Components; Printing & Related Support Activities; Fabricated Metal Products; Furniture & Related Products; Machinery; Chemical Products; Food, Beverage & Tobacco Products; Computer & Electronic Products; Petroleum & Coal Products; Plastics & Rubber Products; Miscellaneous Manufacturing; Transportation Equipment; Paper Products; and Primary Metals. It added that no industry reported a decrease in PMI in May compared to April.

Nine out of 10 new jobs are going to those with a college degree

(MarketWatch -- Steve Goldstein: 6-5-18) Nine of out ten new jobs created in the last year have gone to those with a college degree. ... A three-month average finds that 91% of the net increase in jobs held by those at least 25 years old are filled by those with at least a bachelor's degree, according to data compiled by MarketWatch using the May jobs report released by the Labor Department on Friday. That American employer want a higher educated workforce is not a new trend — there's been a premium in wages for the college-educated since the early 1980s. But the most recent recession seems to have accelerated the divide. Despite some lurches here and there, difficulty for those without a higher education has been the norm since the U.S. entered the worst economic period since the Great Depression at the end of 2007. Anthony Carnevale, director of Georgetown University's Center on Education and the Workforce, said the recent data fits the pattern since the recession, which is to show *rising employment for those with at least bachelor's degree*, more muted gains for those with some college education, and a decline in employment by those with high school degree or less.

What's Stopping the Smart Factory Revolution?

(IW – Keith Belton: 6-4-18) Smart factories that use breakthrough technologies to drive efficiencies within production processes and across value chains [have captured the attention of manufacturing executives](#). Digitalization, so the story goes, offers a wide array of advantages. They include predictive maintenance that will reduce downtime through the creation of “digital twins,” enhanced quality control, demand-driven production, inventory optimization, reduced energy and material costs, and improved safety and environmental performance. Numerous estimates attempt to quantify the value proposition. Consulting firm McKinsey says the economic impact could be between \$1.2 and \$3.7 trillion by 2025. A recent U.S. Department of Commerce survey of U.S. manufacturers and smart manufacturing vendors suggests \$57 billion dollars in annual cost reductions. Of course, there is a catch. Several, in fact. Investment cycles in the manufacturing sector are extremely long. Robust processes and devices will not spring up overnight. Critically, the needed technologies -- such as artificial intelligence or AI -- are not yet fully developed.

[**IoT implementation in mind? Critical factors you must consider**](#)

(TechTarget -- Yates Patel: 6-4-18) As the IoT wave is taking over the globe, enterprises are keen to realize its power to stay competitive in this fast-paced digital marketplace. Gartner predicted that by 2020 there will be over 20 billion connected things. This is evident with the rapid transformation of our day-to-day lives with smart homes, connected cars, smart cities, manufacturing and farms facilities, and wearables. There are endless possibilities, and numerous companies have already started their IoT journey. However, many factors -- robust IoT platforms, data management and security -- are of major concern while considering an IoT implementation. The aim of this article is to highlight some critical factors enterprises need to consider for a successful IoT implementation. With IoT connecting things, enterprises should consider the security of the devices and communications as the top of the priority chain. Unauthorized intrusion or manipulation of devices through control logic or physical defects may result in serious damages. To avoid these issues, it is imperative to make the IoT system secure from the ground up, whether you are connecting simple pressure sensors or complex factory equipment with thousands of elements inside them.

[**Innovation ‘Soft’ Skills Matter**](#)

(Innovation Excellence – Jason Williams: 6-3-18) Virtual Reality ... Artificial Intelligence ... Block Chain technology. It’s no secret that the world around us is changing ... fast! But ask most employers today and they’ll still probably tell you that people are their greatest assets. In our rapidly changing world, it is more important than ever for the workforce to keep up with the job skills needed that will lead the organizations they work for down a path of growth. From corporations to state governments, there has been no shortage of attention to the necessary 21st Century or innovation skills that people need to compete today and into the future. However, I believe that far too often this conversation is limited to just the technical or hard skills such as coding and computer programming. It is true these skills are increasing in importance and in the volume of roles where they are required, but not all jobs require mastery of these skills. I prefer to think about it like mathematics. It is certainly important to understand math to succeed in most work environments. However, only a limited number of roles and industries require mastery of more advanced skills such as calculus.

[**Amgen Foundation and Harvard Team Up to Offer Free Online Science Education Platform**](#)

(PRNewswire: 5-30-18) The Amgen Foundation and Harvard University today announced plans to launch a free online science education platform uniquely designed to level the playing field for aspiring scientists. The *LabXchange* platform, which will launch with a focus in biology, will offer digital instruction and virtual lab experiences to high school and college students, enabling them to gain meaningful exposure to the scientific process. It will also include online networking focused on collaboration and mentoring. "There are many millions of students who, as a result of economic or geographic limitations, simply do not have access to one of the most central aspects of being a scientist, which is working in a laboratory," said Professor Robb Lue, principal investigator of LabXchange and professor of the Practice of Molecular and Cellular Biology at Harvard. "LabXchange addresses this issue with a platform that integrates dynamic experimental simulations with background curriculum and social networking — all created to more effectively expose students of varying backgrounds to the authentic and engaging experience of scientific discovery."

[**Additive Manufacturing Market Research Report**](#)

(ARC Advisory Group: 5-24-18) The Additive Manufacturing market research study delivers current market analysis plus a five year market and technology forecast. The study is available in multiple editions including worldwide, all regions, and a select group of countries. Growing Industrial Ecosystem of Additive Manufacturing: This report is a comprehensive, in-depth analysis of the industrial additive manufacturing systems market, including market size and segmentation, market forecast, industry structure, and supplier market shares.

The dynamic nature of additive manufacturing affords it a level of flexibility unmatched by standard manufacturing processes; however, this advantage has historically been coupled with slow build times, limited material options, high costs, and poor quality. These characteristics largely restricted the use of additive manufacturing to low function prototyping and production of consumer trinkets.

The last few years, however, have been a period of additive manufacturing enlightenment as research in material science, innovation in additive manufacturing processes, and advances in additive manufacturing-related engineering software have converged to elevate additive manufacturing into the industrial manufacturing domain.

This “industrial ecosystem” will continue to facilitate the adoption of additive manufacturing, and the recent flurry of progress is enabling new applications and disruptive business opportunities.

MANUFACTURING FACT OF THE MONTH

Manufacturing is leading the way in Renewable Energy

Manufacturing is one of the leading industries in renewable and clean energy. In 2012, U.S. Manufacturers used 2,269 trillion BTUs of renewable energy compared with only 1,943 trillion BTUs from the transportation, residential, and commercial sector combined. Additionally, industrial CO₂ emissions have decreased by over 13% since 1990 in the industrial sector, with manufacturing notably leading the way.

(Source: Manufacturing Institute)

For More Information on IMS and its services please contact IMS Inter-Regional Secretariat Managing Director, Dan Nagy (dnagy@ims.org) or IMS ISC Chairman, Jack Harris (jack.harris@ims.org).