

# THE SMART INDUSTRY



## FIFTY INDIVIDUALS HELPING TO ADVANCE THEIR ORGANIZATIONS' DIGITAL TRANSFORMATIONS

KEITH LARSON, EDITOR IN CHIEF

The Smart Industry 50 program was created in 2016 to recognize and honor individuals across industry who were making in difference in their organizations' pursuit and embrace of digital transformation. Nominations for this year's class of 2018 were solicited from the readers of Smart Industry, from past recipients of this recognition, and from more than 20 editors across the Putman Media family of industry publications—journalists and engineers who have developed deep relationships with the various vertical niches and functional swaths that their communities of readers represent.

**THE SMART INDUSTRY**



**CLASS OF 2018**

<p><b>Alan Amling</b> UPS VP Corporate Strategy</p>	<p><b>Randal "Scott" Carter</b> Georgia-Pacific VP Automation Innovation</p>
<p><b>Jolene Baker</b> LSI Logistical Systems Senior Manufacturing Intelligence Specialist</p>	<p><b>Sanjay Choubey</b> Briggs + Stratton Global Digital Strategy &amp; Transformation Leader</p>
<p><b>Billy B. Bardin</b> The Dow Chemical Company Global Operations Technology Director</p>	<p><b>Ted Colbert</b> Boeing CIO, SVP IT &amp; Data Analytics</p>
<p><b>Dean Bartles</b> University of New Hampshire Director, John Olson Advanced Manufacturing Center</p>	<p><b>Neil Crockett</b> Rolls-Royce Group Chief Digital Officer</p>
<p><b>Crystal Betteger</b> Westar Energy Supervisor of Predictive Maintenance</p>	<p><b>Paul Daugherty</b> Accenture Chief Technology &amp; Innovation Officer</p>
<p><b>Steve Bitar</b> R&amp;D Program Manager ExxonMobil Research &amp; Engineering</p>	<p><b>Thomas Doney</b> Nestle Development Center Expert Engineer</p>
<p><b>Allen Blackmore</b> First Solar Solutions Architect, Business Intelligence</p>	<p><b>Michael Dudzic</b> ArcelorMittal Dofasco General Manager, Industrial Automation</p>
	<p><b>Jim Fowler</b> VP &amp; Group CIO GE</p>



Dow Chemical's Bill B. Bardin believes that digitalization and the IIoT represent a new generation of process technology advancement, much like the pneumatics that gave way to distributed control systems several decades ago.

The full list of our fifty honorees is spread across the pages that follow, along with more in-depth profiles of many of them. We hope you find their personal stories as inspiring as we do, and join us in congratulating them on their accomplishments.

**A PASSION FOR PROCESS**

AGCO's Peggy Gulick took an interesting path to her current role as director of digital transformation for the global leader in agricultural equipment and solutions. She started out studying English and art, but ended up in information technology. From there, she landed a job not in IT architecture or application development, but in the midst of an SAP deployment. It was there that she found her passion wasn't for IT itself but for the processes that IT was created to support. "Studying processes and making them more efficient—I loved it," she says.

A series of roles in IT and process followed, including global business process responsibility for Pure Fishing, a sporting goods manufacturer. "When I came to AGCO, it was a new position that merged the IT and lean teams," she says. And now, with a new responsibility for global digital transformation, she's working to spread the culture she helped develop at the company's Sioux Falls, South Dakota, facility across the company's more than 40 manufacturing locations around the globe.

"We are extremely proud of the 'informed reality' tools we've developed for our assembly lines," says Gulick of the company's pioneering use of (Google) Glass hands-free



Since leaving business school in the 1993, Altimeter's Charlene Li has felt most at home in the midst of digital transformation. So much so, that she wrote the book. Look for *The Disruptor's Agenda: How to Create a Strategy for Breakthrough Growth* at bookstores and online this October.

headsets to convey electronic work instructions to operators who spend their days on a low volume, highly custom product mix. "Our assembly line is rolling four to six tractors a day—none of them the same," Gulick explains. The wearable tools offer value immediately, Gulick says, crediting them for allowing faster training, the smoother introduction of process changes, and the ability to flag quality issues at the point of execution. "We use these technologies every day in production, making employees excel in all they do."

But if the technology implementations are leading edge, the real secret to AGCO's success is its focus on skilled workers. "It's how we acclimate and embrace them," Gulick says. "The successful application of new technologies is all about the adaptive culture we're building. And once the culture transitions, our technology folks won't be moving fast enough," she predicts. "People who visit our Sioux Falls facility find the projects are brilliant, but come away saying, 'Wow, what a culture.'"

#### **NEXT-GEN PROCESS TECHNOLOGIST**

With responsibility for driving the implementation of new technology within Dow's manufacturing organization, Billy Bardin is among those digital innovators who today are defining the future of process technology.

According to Bardin, "Digitalization and the IIoT represent a new generation of process technology advancement, much like the pneumatics that gave way to distrib-



A master black belt in the Lean Six Sigma methodology, Carlos Ruiz learned early on in his career that new systems and process will only deliver results when people are at the center of the plan. Today, he's tasked with leading the manufacturing arm of global cosmetics powerhouse L'Oreal to be more consumer-centric: "We need the technology, systems and the mindset to respond more quickly to customer demand."

uted control systems several decades ago. The difference is that 35 to 40 years ago we were automating manual processes with new control technology, but with today's digital and data science capabilities, we are in the position to advance process technology even further to deliver operational performance and products previously unconceived as well."

Bardin's no stranger to seeking out faster, more efficient ways to effect positive change in the organization, having helped steer the company's efforts to bring the pharmaceutical industry's "high throughput" research methodologies to the commercialization of new catalysts and materials. Advances that in the years since have yielded significant results not only in profitability but in energy savings and sustainable operations, too.

Looking forward, Dow promises to build an increasingly Digital Dow, with a digital thread across the company's entire value chain. "The fun part of my job is setting us up for successful value delivery in the near-term, while establishing a path for the next 20-30 years that optimizes our manufacturing assets, data, and connectivity," says Bardin.

From a production perspective, increasingly data-driven decision-making, together with plant optimization in real-time, top his future predictions list. His crystal ball also indicates the increased use of smarter, low-cost sensors and



**THE SMART INDUSTRY**  
**CLASS OF 2018**

<b>Newell Franks</b> Burr OAK Tool Chairman, CEO	<b>Edith Harmon-Weiss</b> New Balance VP Manufacturing Innovation
<b>Tom Gaasenbeek</b> Nexas Networks CEO	<b>Ahmed Hashmi</b> BP Global Head, Upstream Technology
<b>Dan Gamota</b> Jabil VP Engineering & Technology Services	<b>Chris Heck</b> Duke Energy CIO
<b>Jay Gnuse</b> Chief Industries Information Technology Director	<b>Julie Holstad</b> Southern Company Engineering Manager, Data Acquisition & Cyber Security
<b>Jens Grafbs</b> Airbus Group VP Research & Technology	<b>Michael Hurley</b> Flint Hills Resources CIO
<b>Matt Griffiths</b> Stanley Black + Decker Industrial CIO	<b>Brian Hurst</b> Exelon Utilities Chief Analytics Officer
<b>Peggy Gulick</b> AGCO Director, Digital Transformation, Global Manufacturing	<b>John Kelly</b> BAE Systems Director of Empower Innovation
	<b>Don Kinnard</b> Lockheed Martin Senior Fellow



First Solar's Allen Blackmore has worked diligently to move all of the company's manufacturing data into the cloud to facilitate advanced analytics on manufacturing processes. The rest of the company's data is next: "The next evolution for us is a data lake where we can bring in unstructured data. The cloud allows a new scale of analytics that is impossible with on-premise solutions."

robotics—both of which promise to increase productivity and worker safety. Think sensors that can not only eliminate or reduce operator rounds but serve as an effective and reliable means for assessing potential equipment failures, and robots that can eliminate the need for hazardous and time-consuming confined-space-entry practices. "If they can use robotics for exploration of Mars," Bardin says, "we can do it here, too."

**DIGITAL BLACK BELT**

A master black belt in the Lean Six Sigma methodology, Carlos Ruiz learned early on in his career that new systems and process will only deliver results when people are at the center of the plan.

Over his career, Carlos has successfully applied these principles in a series of increasingly responsible positions in industries ranging from automotive to packaging to consumer packaged goods. Today, he's responsible for manufacturing engineering and operational excellence in North America for L'Oreal, the global cosmetics powerhouse.

It's hard to imagine a manufacturing industry more impacted by society's digital transformation, or the extremes of "batch size one" mass customization. In the US, the company already manages over 1,200 new product launches annually, and Ruiz foresees a future in which the company must become ever more agile—able to pivot quickly to capitalize on a celebrity social-media



“Every bit of data is telling you something,” says Jolene Baker, senior manufacturing intelligence specialist for integrator and consulting firm LSI Logical Systems. “Data can come from instruments, humans, paper, nerves—many places,” she says. “Projects start with data and the people who give it to you—people’s interpretation of that data is important as well. That’s where I start.”

mention of a nail polish shade, or to match an individual consumer’s skin tone (perhaps conveyed through a smartphone app) with custom foundation delivered in time for tonight’s cocktail party.

“Our mission is to accelerate transformation of manufacturing to be more consumer-centric,” Ruiz says. “We need the technology, systems and the mindset to respond more quickly to customer demand.”

Guided by the vision of Industry 4.0, the company’s digitalization effort started in earnest some 18 months ago, and North America has taken the lead across all global operations, Ruiz says. “We needed to augment our suppliers and vendors to keep the pace with the change, so our engineering team started co-developing the agile lines that will deliver the results needed by our business. At same time, we’re focusing on upskilling and training as a key objective. Our employees will be equipped with new capabilities and mindsets to embrace the new world of manufacturing.”

### PATTERN WHISPERER

Speak even briefly to Jolene Baker about her work, and two things come clear quickly. First, she lives and breathes data; she’s passionate about rooting out patterns and the insights they reveal.

Success, however, comes for her when those insights can be used to effect positive change in the world—for



Jeff Smith prides himself on his ability to digest risk in order to place a claim on the future. That outlook has led him from a start-up exchange for carbon credits to now steering the IoT fortunes of Parker Hannifin, the 100-year-old maker of industrial components that go into machines ranging from submarines to spaceships. He’s educating the company’s 150 divisions and more than 300 companies on the financial and technical realities of digital transformation.

example, by helping front-line workers to eliminate redundant, non-productive tasks, or using quality data as an early indicator of environmental issues for an oil & gas producer. She’s particularly invested in a project she’s working on now called WaterSMART with the Bureau of Reclamation and OSIsoft to build a community of water data stakeholders in the Western U.S. The goal of the project is a better understanding of water usage patterns and, ultimately, the coordination of more effective conservation efforts.

“Every bit of data is telling you something,” says Baker, who currently serves as senior manufacturing intelligence specialist for integrator and consulting firm LSI Logical Systems. “Data can come from instruments, humans, paper, nerves—many places,” she says. “Projects start with data and the people who give it to you—people’s interpretation of that data is important as well. That’s where I start.”

In the realm of data science, she sees the practice becoming easier in the not-too-distant future, so that the tools and insights they can glean are available to a broader range of people and industries. “If the market stays hungry for data, digital experts will continue to build tools that efficiently capture and simplify data analysis,” she says.

“There will be a logical meshing and compression of all the intelligent moving parts. Like in any other new



**THE SMART INDUSTRY**  
**50**  
**CLASS OF 2018**

<p><b>Greg Leveille</b> ConocoPhillips CTO</p>	<p><b>Chris Renken</b> Constellation Brands VP Manufacturing Systems</p>
<p><b>Charlene Li</b> Altimeter Principal Analyst</p>	<p><b>Gavin Rennick</b> Schlumberger President, Software Integrated Solutions</p>
<p><b>Dale Malony</b> Honda of America OT &amp; Asset Monitoring Leader</p>	<p><b>Carlos Ruiz</b> L’Oreal Senior Vice President, Manufacturing North America</p>
<p><b>Faith McCreary</b> Intel Principal Engineer &amp; User Experience Researcher</p>	<p><b>Trent Salvaggio</b> IoT Talent Consortium Executive Director</p>
<p><b>Laura Merling</b> UTC Chief Digital Officer</p>	<p><b>Vivek Sankaran</b> Frito-Lay North America President, COO</p>
<p><b>Rolf Paeper</b> Ingersoll Rand VP Digital Solutions</p>	<p><b>Didier Sassereau</b> Gerbo Cermex Product Manager</p>
<p><b>Irene Petrick</b> Intel Director Industrial Innovation, IoT Group</p>	<p><b>Narinder Pal Singh</b> OLAM International VP Engineering</p>
<p><b>Allison Radecki</b> Beam Suntory CIO</p>	<p><b>Jeff Smith</b> Parker Hannifin IoT Business Development</p>



From his early days crunching revenue forecasts for big-budget Hollywood films, Parag Vaish has long practiced making disciplined, de-risked decisions based on limited information. Today he’s in charge of consumers’ digital relationship with the Tesla brand, including their electric cars and home energy solutions—and helping to advance the company’s mission to “accelerate the world’s transition to sustainable energy.”

technology, eventually there are fewer hoops, fewer components, and it becomes a new normal,” she says. “Pattern recognition will be an easy-to-do, every day activity.”

**FOUNDATION BUILDER**

Jay Gnuse came of age with the personal computer, turning a college gig tutoring staff at local construction company Chief Industries on the use of the popular Lotus 1-2-3 spreadsheet into a career that grew with the IT needs of the Grand Island, Nebraska-based company.

Founded in 1954, Chief Industries today boasts seven global divisions whose businesses range from building agricultural processing equipment and storage facilities to operating ethanol plants. The number of computers Gnuse manages also has grown in the intervening years—from those first two IBM PCs to more than 850 today.

Throughout his time at Chief—as IS manager then IT director—Gnuse always sought to build cost-effective digital systems that reliably supported the growing company’s business objectives. Under his IT leadership, Chief Industries recently served as beta testers of enterprise software from its ERP provider, but he’s most proud of the strong, creative and fiscally responsible team he’s built. “We do a good job of satisfying user needs while keeping costs down,” Gnuse says.

But that’s starting to change as the company “looks to



Tom Gaasenbeek likes to say he is “always up to something.” For example, he came to the early realization in 1994 that all machine tools should be connected to the internet, and celebrates November 11, 2000, as the day the world settled on XML as the standard way to do just that. Among his industry contributions is his work on the OMAC XML effort that ultimately led to MTCconnect, the increasingly accepted standard now being used to allow machine tools to participate in the Industrial Internet of Things.

digital” not only to support current business processes but to enable further growth and efficiency gains. For example, much of his team’s recent efforts have been directed to modernizing and securing the company’s digital infrastructure in preparation for the future, an effort for which Cisco Systems recently awarded them a Technology Innovation Award for “improving business through digital transformation.”

“The shop floor is looking to automate, to make operations more efficient,” Gnuse adds. Imagine, if you will, thousands of construction components destined for multiple sites that have to be loaded onto trucks and timed to arrive at the right site at the right time—over projects that last weeks or months. “Logistics and parts tracking, likely using RFID, is what we’ll be working on soon.”

### CLOUD OR BUST

From the start of his career at automotive Tier 1 supplier Dana Inc., Allen Blackmore was thrust into the world of manufacturing software and data analytics, where he soon earned a reputation for being able to stand up applications that could begin delivering value quickly. “Not all systems have to be huge,” Blackmore says. “You often have the opportunity to make an impact in a short time.” That reputation served Blackmore well, when the CIO of First Solar was looking to build a team to support the rapid



Narinder Singh is leading the efforts of global agribusiness leader Olam International to define the strategic roadmap for manufacturing operations and procurement that will deliver Olam’s vision to be “the most differentiated and valuable global agri-business by 2040.” Across the company, he is working with diverse, multifunctional teams—including both “digital dinosaurs” and Millennials—to evaluate those transformations that are most important to the company’s future, anticipate digital disruption to get benefits of early mover status, and establish a digital culture for the future.

scale-up of production at the photovoltaic systems supplier in the mid-2000s.

In his time at Dana and in his 12 ensuing years at First Solar, Blackmore has never seen himself as part of the IT cubicle culture. Rather, he sees his role as working closely with other parts of the business to educate them on what digital technology can do—and helping them to make it happen. “I love what I do,” Blackmore says. “I consider myself successful when I help others understand what’s possible, when I see that light bulb go off.”

Recently he’s worked to move all of the company’s manufacturing data into the cloud to facilitate advanced analytics on manufacturing processes. The next step is getting the rest of company’s data onto that same platform—sales, finance, everything. “As First Solar matures, the next evolution for us is a data lake where we can bring in unstructured data. The cloud allows a new scale of analytics that is impossible with on-premise solutions,” Blackmore says.

Blackmore’s clearly bullish on the power of analytics and on cloud technology, comparing the cloud to a puzzle that can be put together in multiple ways for value or cost advantages. The cloud may even be the ultimate solution to IT/OT convergence issues, he says. “Industry can

**THE SMART INDUSTRY**



**CLASS OF 2018**

<p><b>Yves Gorat Stommel</b> Evonik Director, Business Development &amp; Innovation</p>	<p><b>Parag Vaish</b> Tesla Head of Digital Product Management, Content &amp; Design</p>
<p><b>Derek Travella</b> Monsanto Reliability Systems Lead</p>	<p><b>Steve Zitney</b> U.S. Dept. of Energy Process Systems Engineering Research</p>



As agricultural equipment maker and construction contractor Chief Industries “turns to digital” to continue its expansion, it’ll also turn to IT Director Jay Gnuse to provide a resilient technology foundation and the new, digital tools it will need to further streamline logistics and distribution.

collect data directly to the cloud,” he notes. “What if it took on 100% of the data? Security and performance are important attributes, of course, but what if OT gave up control?”

**THE NON-INCREMENTALIST**

Even as a newly minted chemical engineering grad, Steve Bitar saw his mission in life as finding better ways to do things. “I wanted to see step changes, not incremental gains—all I wanted to do was innovation,” he says. And when he learned that one of the new computers they had onsite at the Mobil refinery in Paulsboro, N.J., could be used move valves, he was hooked.

But this was the early 1980s, and some of the control applications he had been developing on the side ran up against a supervisor who—unbeknownst to him—had promised the refinery manager that the computers would not be used for control. Management came around in the end, but not before Bitar feared for his job. “It almost went terribly wrong,” Bitar says. Since that time, he’s worked at 13 different plant locations in the ExxonMobil organization and has learned that in conservative industries like oil

refining, you have to be careful with respect to innovation. “Too much and you make people nervous.”

It was fitting, then, that Bitar ultimately found a home in ExxonMobil’s Research and Engineering organization, where he’s had a freer rein to “find ways of doing cool things that no one has done before.” He cites an early multivariable control application where a new model development methodology dramatically reduced the time required to build a model—largely because they moved as many as nine variables at a time, rather than the tradition one-at-a-time approach. “It took four business days rather than two weeks of 24x7 effort,” Bitar says. “I’m always amazed when we can do things better, faster and cheaper. I’ve always found enough pockets of innovation to keep me happy.”

But Bitar’s biggest innovation likely remains ahead of him. Starting in 2012, he took up the company’s initiative to figure out a way to make modernization, migration and lifecycle management of the company’s fleet of distributed control systems (DCS) a less painful proposition. That initiative resulted in the Open Process Automation Forum, an industry-wide initiative designed to develop a more open architecture that would ultimately allow the continuous evolution of on-process control systems technology—without the need for extensive, multi-year updates. “We’ll upgrade as a matter of course,” Bitar predicts, “adding compute as needed and unlocking innovation along the way.”