

# **IMC Clients Make “Inc. 5000 2016” List**

written by Lauri Moon | August 23, 2016

Congratulations to DiamondBack Truck Covers and Advanced Powder Products for making the Inc. 5000 2016 List.

This is Inc.’s annual ranking of the fastest-growing private companies in America.

[Click here for Advanced Powder Products listing.](#)

[Click here for DiamondBack Truck Covers listing.](#)

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# **U.S. Expected to Lead as the Top Manufacturing Nation by 2020**

written by Lauri Moon | August 23, 2016

WASHINGTON, Dec. 4, 2015 /PRNewswire/ -The United States is expected to become the most competitive manufacturing nation over the next five years, with the current leader China sliding into second position, according to the upcoming 2016 Global Manufacturing Competitiveness Index report from Deloitte Touche Tohmatsu Limited’s (Deloitte Global) Global Consumer & Industrial Products Industry group and the US Council on Competitiveness (Council). Read from PR Newswire [more]

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# The Reshoring Challenge: Why and How CEOs are Moving Jobs Back to America

written by Lauri Moon | August 23, 2016

*Don Rongione had an ally in his effort to shift hat production of the Bollman company from China to Pennsylvania — actor Samuel L. Jackson, who was a fan of the company's Kangol 504 woolen knit cap.*

(Chief Executive - William J. Holstein: 8-2-16) For his reshoring initiative with the Bollman company, Don Rongione paid to move unique knitting equipment from China to Pennsylvania in part by using a YouTube video of Jackson to appeal to investors on Kickstarter, the crowdsourcing website.

Bollman, which says it is America's oldest hat company, with more than \$10 million in annual sales, bought the Kangol brand in 2001 from a British company. That company had previously sent all of its custom-made machines dating back to the 1930s and 1940s to southern China, where it made the beret-like Kangol hats. So Bollman, in effect, inherited a factory in China, containing the special machines that performed at much lower costs than any new machine might.

Bollman struggled to manage the factory profitably and ultimately sold it to a Chinese hat maker, but that arrangement fell apart and the idea to simply move the equipment to central Pennsylvania was born. Rongione set aside some of the employee-owned company's funds, raised some from the state of Pennsylvania and then launched the Kickstarter campaign. Jackson, wearing a t-shirt that reads "Motherfunder," a slight variation of a word he's known for uttering on screen, appealed to viewers to support the move. They did, ponying up more than \$100,000.

The company recently moved 10 of the knitting machines, is preparing to move dozens more, and is hiring workers at a starting hourly wage of \$10.30 an hour. But it is finding that its workers, both new and old, have a big learning curve ahead of them in absorbing how to master the knitting process, which is new to the company.

“Hiring people with the specific knowledge has been virtually impossible,” Rongione says. “No one has the knowledge on this type of equipment.” So the company has brought in experts from Britain who are familiar with the equipment and worked with a local community college in Reading, Pennsylvania, to train students to become apprentices. The final outcome remains uncertain. “We still have a mountain to climb,” Rongione says.

### **Homeward bound**

More American CEOs are, in fact, deciding to bring home jobs from China and elsewhere. After going only in one direction for many years, the Reshoring Initiative, based in Kildeer, Illinois, reports that the total number of manufacturing jobs that were created in the U.S. in 2015 slightly exceeded the number of jobs shipped to other countries. It estimates that the combination of reshoring and foreign direct investment brought about 67,000 jobs back to the U.S. in 2015 versus 60,000 that went out, for a small net margin of 7,000 jobs.

About 60% of the jobs returning come from China. The auto industry is the most significant in terms of jobs repatriated, suggesting that large companies are the prime movers. But the Reshoring Initiative says companies of less than \$1 billion in annual sales account for about half the jobs being created in the U.S.

Read on...

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# **The Effectiveness of R&D Tax Credits**

written by Lauri Moon | August 23, 2016

(SSTI - Jonathan Dworin: 7-28-16) When the U.S. government made their R&D tax credit *permanent* in December 2015, it made a long-term commitment to using incentives to entice private firms to invest in research and development, joining many countries around the world. Although [most studies](#) find that R&D tax incentives promote R&D, there is little consensus on the extent of this effect. A recent firm-level analysis from the United Kingdom finds some of the

strongest evidence to date on the effectiveness of R&D tax credits in incentivizing innovation. At the same time, however, other studies suggest other elements of a national economy such as education and infrastructure may be more important.

In *Do Tax Incentives for Research Increase Firm Innovation? An RD Design for R&D*, Antoine Dechezleprêtre, Elias Einiö, Ralf Martin, Kieu-Trang Nguyen, and John Van Reenen - four researchers from the London School of Economics - analyze a 2008 policy that changed the threshold for what size businesses counted as a small and medium-enterprise (SME) for the UK R&D Tax Credit system. Although the United Kingdom has had an R&D tax credit in place since the year 2000, firms with assets above €43 million (47.6 million USD) but below €86 million (95.2 million USD) were not counted as SME's prior to 2008; after the policy change, however, they were. Overall, the authors find that UK business R&D would be 10 percent lower in the absence of the tax breaks.

The authors utilize a "regression discontinuity design" to best view the impacts of the new tax threshold. Using confidential access to firm tax records and accounts from more than two million businesses, the authors are able to assess how firms changed their approach to R&D before and after the change went into place. *They find that expenditures on R&D roughly doubled and patenting increased by approximately 60 percent.* Additionally, the authors find that firms receiving a larger incentive to perform R&D through the policy change grew in both sales revenue and in number of jobs.

No other policies were implemented around the threshold analyzed, the authors argue, so the large jumps in both R&D expenditures and in patenting were likely due to the new policy. While increases in R&D expenditures are noteworthy, the authors consider the impact on innovation and patenting particularly important. One concern with R&D tax credits, as mentioned by the authors, is that some firms may re-label other activities that were not previously considered R&D as a means to take advantage of the credits. While this would, perhaps, explain some of the variation in R&D expenditures, there is no incentive to do this for patenting. Furthermore, the authors find evidence that the quality of patents were not negatively impacted; firms increased the rate at which they applied for both EU-wide patents and UK-only patents, while the citation rate per patent did not decline.

The authors find that a 10 percent fall in the price of R&D generates an approximately 26 percent increase in the volume of R&D, an amount that is larger than that found in previous

studies. The authors suggest that one potential reason for this is that most studies focus on large firms or on aggregate amounts that are heavily influenced by large firms, while the UK policy analyzed by the authors focuses explicitly on SMEs. Given that smaller firms are more likely to face cash constraints to fund their innovative endeavors, they were more responsive to the policy that effectively made these activities more affordable.

In the newly released book, *Rethinking Investment Incentives: Trends and Policy Options*, the fourth chapter entitled *Use of Investment Incentives: The Cases of R&D Related Incentives and International Investment Agreements* and written by Christian Bellak and Markus Leibrecht, highlights the economic case for investment incentives, especially around topics such as research and development.

In the chapter, the authors suggest that the most important justification for public R&D investment incentives is rooted in an apparent positive discrepancy between private and social returns from R&D, which could lead to an underinvestment in R&D by profit-maximizing firms.

In categorizing R&D incentives, the authors distinguish between *direct incentives* and *fiscal incentives* and find considerable variation across nations. While all OECD countries offer direct incentives for R&D through subsidies, loans, and government procurement, not all countries grant fiscal incentives, which measure revenues foregone through programs such as R&D tax credits, R&D allowances, and other indirect government support.

The authors present varying degrees of empirical evidence on the effectiveness of R&D investment incentives, but ultimately conclude by noting that these incentives are of second-order importance for promoting R&D intensiveness, especially in developing countries. Instead, the authors posit, countries should focus more on continuously improving the institutions needed to conduct intensive R&D, such as education systems that develop human capital, telecommunication infrastructure to support connectivity, responsible governance, and a transparent approach to patents.

Coupled together, these two pieces shed light on the impacts of research and development tax credits. One potential issue in measuring the effectiveness of R&D tax credits is that most empirical analyses take the perspective of the state or nation offering the credit and evaluate the aggregate, rather than assessing the impact on the firm.

At the aggregate level, Bellak and Leibrecht note that effectiveness of these policies is mixed;

although many nations offer incentives for R&D, many factors could be considered more important to boosting innovation. For firms in an already developed economy, the Dechezleprêtre et al study, however, shows that *R&D tax credit policies could be particularly meaningful to SMEs.*

The findings of Bellak and Leibrecht's chapter largely echo a 2013 *Digest* article that [examined](#) the effectiveness of tax credits at the state level. That article found R&D tax credits "can be an effective tool in a state's economic development strategy, but only when designed with a particular state's economy in mind. *R&D incentives are most effective in states that already have a significant level of research activity, and a substantial high-tech business community.*" In other words, R&D tax credits may help to incentivize innovative activities, but they are hardly the only force at play.

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# **Advancing Information Transformation in the Manufacturing Sector**

written by Lauri Moon | August 23, 2016

*Treat data and information as you would any critical business asset: measure, document and manage essential attributes such as value, risk and cost.*

(IW — Kimberly Knickle: 7-6-16) Manufacturers depend on information and analytics to help them deal with the complexity caused by global operations, value chains and market. Most recognize that there is tremendous opportunity to use, analyze and apply information all across the business. However, they need to do a better job capitalizing on the information that is and will become available to them and to embed intelligence in how they manage their operations and deliver products and services.

Manufacturers must evolve from a classic data management approach to one that leverages information and knowledge as critical business assets. Existing quality, data governance and data management practices are still essential. But these practices must evolve to meet the requirements both of the legacy environment and of the digital business under construction.

Information transformation is a huge and critical challenge for many. IDC estimates that by 2020, the digital universe will reach 44ZB, or 44 trillion gigabytes, of data—a tenfold increase over that in 2013, with 40% growth per year. To make matters worse, IDC estimates that 22% of the information in the digital universe was usable for analysis in 2013; however, less than 5% of that usable information was analyzed. These numbers need to change for manufacturers.

Although most manufacturers have aggregated and analyzed much of their transactional data, many see value in other data types and sources, such as machine- or sensor-generated data, GPS data, text, rich media (image, voice and video), and consumer sentiment from e-commerce sites and social networks.

### **The Rise of the Knowledge Worker**

Manufacturers need their employees to do their jobs more efficiently and productively—as they manage operations, design products and develop new intellectual property (IP)—from anywhere in the world. Knowledge is the basis for augmenting and automating work throughout the company and from the experienced to the new generation worker to yield further productivity benefits.

Knowledge workers—those employees who primarily rely on data and information to do their work—currently represent about 40% of the manufacturing workforce. And in large or geographically dispersed manufacturers, information is often the glue that keeps the company working as one. Yet manufacturers often struggle to provide unified information access systems with a “single point of access” to heterogeneous data sources or achieve what we call “truth in data.”

### **Data-Driven Manufacturing—In Processes and Products**

Despite all of the localized information analysis that takes place today within various

lines of business or applications, manufacturers are still not achieving the success they would like to in applying that information, whether because of data quality problems, data disconnects, the age or timeliness of the data, or even the availability of data.

Some of the use cases that are currently receiving the most interest leverage sensor data, create new products and services, and change how manufacturers interact with their customers and their customers' customers. But most of these new use cases require the integration of enterprise data sources and external data sources (such as weather and traffic). This is especially true for two use cases that are of high interest to many manufacturers:

- *Predictive asset maintenance* uses sensor data on production equipment, integrated with enterprise asset management systems to drive maintenance and with inventory data to ensure an adequate supply of necessary service parts.
- *New service delivery via connected products* uses sensor data in products in use by customers to monitor real-time product performance data for maintenance, to confirm products are under warranty, or to deliver consumables. Integration bridges sensor data, warranty systems, CRM, ERP and supply chain applications.

Eventually, we will also find manufacturers selling their data as a product, and although we don't fully know how this market will develop, it builds on the fact that "knowledge is power." 3-D printing and robotics will also contribute to data-driven manufacturing as well, both requiring a significant amount of data to fine-tune their performance and generating large volumes as they operate.

### **Changing Technology—Business Process Platforms and Advanced Analytics**

Other factors are driving the need for information transformation, such as the need to support business processes and interdepartmental collaboration that crosses application boundaries. For example, the global product innovation platform, which serves as a way to increase access to and sharing of product-related documents and data for distributed engineering organizations and well beyond engineering. Data integration and analytics are absolutely essential to the successful implementation of



the innovation platform and other process platforms.

The availability and demand for more advanced analytics are also accelerating, as manufacturers look to the promise of prescriptive analytics, machine learning and cognitive computing to provide guidance or even automation.

## **Information Transformation**

Manufacturers must do more than just invest in tools and technologies; they need an information transformation. Such a strategy can help manufacturers advance and draw maximum benefit from the extraordinary power of information. In each stage of this transformation, leaders should focus on the following dimensions:

- **Data discovery:** including acquisition and preparation, exploration, visualization and datafication.
- **Value development:** through analytics, algorithms, program management and quality.
- **Value realization:** through monetization, productization, real-time orchestration and service innovation.
- **Knowledge and collaboration:** including work virtualization, knowledge and integration, governance, and risk.
- **Information architecture:** including data management and enterprise information model, integration and synchronization, information architecture services, and security.

At the highest level of maturity—the optimized stage—organizations will be able to drive continuous improvement in how data value is developed and realized throughout the value chain. They will rely on an information platform that ensures the security of the company's IP and clearly establishes information as an essential corporate asset. They also will value their data and even monetize it.

*Information and embedded intelligence drive continuous innovation in processes, products and services; enable revenue streams; and fuel enhanced customer engagement and experiences.*

Our guidance for manufacturers over the next year includes:

- Assess your enterprise capability in each of the dimensions of an information transformation.
- Adopt a balanced scorecard approach to coordinating initiatives and interdependencies across the dimensions. Our research indicates that imbalance across the maturity levels impedes success.
- Lead by example and champion collaboration. Allow both top-down and bottom-up actions to positively interact. Educate all the stakeholders.
- Treat data and information as you would any critical business asset. This means measuring, documenting and managing essential attributes such as value, risk and cost.
- Focus on meaningful but limited initial initiatives before investing in larger ventures. Agree on maturity targets and create the roadmap of your information digital transformation.

The most advanced companies can accelerate the pace of sophisticated analysis, the mix of data and data types, and the ability to optimize and predict business decisions. Leaders in information transformation will treat data and information as they would any critical business asset—with investments in people, processes and technologies that acknowledge information’s strategic importance and with a roadmap to maximize information’s contribution to business success.

(Kimberly Knickle is research vice president with analyst firm IDC Manufacturing Insights.)

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## **ISM Reports Manufacturing Finishes 1st Half 2016 in Good**

# Shape

written by Lauri Moon | August 23, 2016

(Modern Materials & Handling — Jeff German: 7-1-16) Manufacturing finished the first half of 2016 in strong shape, based on the June edition of the Manufacturing Report on Business from the Institute for Supply Management (ISM).

*The PMI, the index used by the ISM to measure growth, was 53.2 (a reading of 50 or higher indicates growth), which topped May by 1.9% and is the fourth straight month of growth, too. What's more, the PMI is now at its highest level going back to February 2015, when it was at 53.3. From October through February, the PMI had seen sub-50 readings, with October marking the first month that the PMI was below 50 since November 2012. June's PMI is 2.9% above the 12-month average of 50.3. ISM noted the overall economy has seen growth for 85 consecutive months.*

Each of the report's core four metrics, including the PMI, saw growth in June. New orders, which are often cited as the engine that drives manufacturing, saw a 1.3% increase to 57.0 and reached its highest level since coming in at 57.4 in December 2014. Production was up 2.1% at 54.7 and at its highest level since July 2015's 55.0. Employment rose 1.2% to 50.4.

ISM said that of the 18 manufacturing sectors contributing to the report, 13 reported growth in June, including: Printing & Related Support Activities; Textile Mills; Petroleum & Coal Products; Food, Beverage & Tobacco Products; Fabricated Metal Products; Apparel, Leather & Allied Products; Paper Products; Miscellaneous Manufacturing; Computer & Electronic Products; Chemical Products; Primary Metals; Machinery; and Nonmetallic Mineral Products. *The three industries reporting contraction in June are: Electrical Equipment, Appliances & Components; Transportation Equipment; and Plastics & Rubber Products.*

ISM member respondents cited in this month's report were encouraging. A food, beverage, and tobacco respondent said his company is gaining new customers through better sales management, and a machinery respondent said business is steady with some signs of increase. A plastics and rubber products respondent said demand continues to be robust. A primary metals respondent observed that orders are slowing from China, and American consumers are still steady.

"I really like this whole report," said Brad Holcomb, chair of the ISM Manufacturing Survey Business Committee, in an interview. "It's been building and increasing in momentum for the last four-to-six months, and we are finishing the first half of the year on a high note."

Backlog of orders in June saw a 5.5% jump to 52.5, which Holcomb said is a bodes well for future production growth, and supplier deliveries slowed at a faster rate, with a 1.3% difference to 55.4 (a reading above 50 for this metric indicates slowing).

Exports and imports were up 1.0% and 2.0% to 53.5 and 52.0, respectively.

"These metrics all show that things are solidifying and continuing a positive trend after some sluggishness," he said. "But now things are going the other way. And if you look at some other related news, consumer confidence and spending is up, too, with all things starting and ending with consumers."

The report's section on buying policy also paints a positive picture for the current state of manufacturing, with capital expenditures in June average days for commitment lead time went from 127 days in May to 131 days in June. This reflects companies placing more orders for capital equipment.

And with the first half of the year being relatively solid, Holcomb said that this shows manufacturers' CFO's are opening up the purse strings to approve projects.

"Things are set up well to align with our forecast we made in May," he said.

*Brexit impact:* In a separate report issued today on Britain's decision to leave to the European Union last week (Brexit), ISM respondents' feedback indicated that while most procurement executives don't foresee major disruptions, many are cautiously watching the situation closely and believe Brexit will hamper growth to varying degrees.

Nearly 60% (58%) of manufacturing respondents cited a negligible net financial impact, with 7% saying it was negative, 31% saying it was slightly negative, 4% saying it is slightly positive, and 0% saying it is positive.

"My response to Brexit is 'who knows?'" said Holcomb. "One scenario is that Europe becomes more competitive, as each nation hunkers down and fights for its share of the marketplace and competes more strongly. In the short-term, there is going to be concerns about the price of

currency, currency fluctuations, and other things. The stock market is already completely recovered after the fall, and I am willing to stick with our forecast...and that estimated adjusted increase in our manufacturing revenues of 2.8% appears to remain on track.”

(Jeff Berman is Group News Editor for Logistics Management, Modern Materials Handling, and Supply Chain Management Review. Jeff joined the Supply Chain Group in 2005 and leads online and print news operations for these publications.)

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# Bringing the World to PA

written by Lauri Moon | August 23, 2016

Don't miss this opportunity!

Pennsylvania companies interested in selling their goods and services overseas can learn about the business development resources available to them and network with Pennsylvania's Authorized Trade Representatives (ATR) from around the world during the Bringing the World to PA Tour September 12-23, 2016.

Bringing the World to PA, formerly Pennsylvania International Week, started as a week-long event, but was expanded to 10 days in response to its popularity with Pennsylvania's business community. The events are coordinated in partnership with the Regional Export Network (REN) across Pennsylvania. This year, the event will be held in 10 different locations across the state.

At each location, ATRs will meet one-on-one with Pennsylvania companies seeking foreign market intelligence, agents and distributor candidates, and industry and government contacts, as well as on-the-ground assistance when visiting these markets.

The RENs in the Central PA Region are SEDA-COG and SAPDC.

SEDA-COG will host the 15 ATRs on September 12th at Celebration Hall, State College, PA from 8:00 am to 4:30 pm. [Click here](#) for additional information on the SEDA-COG Bringing the

World to PA Event.

SAPDC will host the 15 ATRs on September 13th at the Susquehanna Country Club, Johnstown, PA from 8:15 am to 2:45 pm. [Click here](#) for additional information on the SAPDC Bringing the World to PA event.

There are deadlines to register for the one-on-one meetings so don't delay!

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# Opening Doors & Minds - Manufacturing Day 2016

written by Lauri Moon | August 23, 2016



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# The Future of Manufacturing: 2020 and Beyond

written by Lauri Moon | August 23, 2016

(IW Research Report - Kronos: 7-27-16) This joint research product between *IndustryWeek*

Custom Research and Kronos shines a light on manufacturing strategy, management practices and investment priorities over the next five years and beyond.

While U.S. manufacturing employment has declined over the past 25 years, the future outlook is bright. Taken alone, the U.S. manufacturing sector would be the ninth-largest economy in the world, according to the National Association of Manufacturers.

As our research found, *manufacturing leaders are overwhelmingly positive about their business growth prospects*. Nine out of ten expect revenues to grow, and more than half expect revenues to grow 5% or more per year over the next five years.

The top challenges to meeting these strong growth expectations are market volatility, rising material costs, price reduction pressures and increasing labor costs. To thwart such threats, according to our research, manufacturers are pushing hard to improve performance across a range of capabilities, starting with improving production processes, strengthening customer relationships and finding people with the right skills and experience.

To achieve their growth targets, manufacturers are investing in areas that will improve productivity and speed responsiveness. Company leaders also are prioritizing investments that will make it easier to collaborate with customers and suppliers, gather market intelligence and streamline customer communication. Topping the list of specific technology investments are quality management and lean manufacturing systems. To better align labor and production capability with daily demand, they're also budgeting for demand planning/forecasting systems, workforce/labor management systems and performance dashboards.

While innovation is always a strategic priority, a surprisingly large percentage of manufacturers (45%) have not yet set a specific goal for reducing new product development cycle times. Among those working to shorten product development cycles, they're trying to better understand customer and market needs, improve professional labor productivity and create prototypes faster.

To attract and retain people with the right skills and experience, manufacturers are primarily emphasizing leadership training, performance management and skills training. Not surprisingly, companies that are investing in new systems and equipment also are more likely to be investing in the personal growth and development of their people.

This research report details the leadership priorities and investments that U.S. manufacturers are making in new systems, equipment and people to remain globally competitive through 2020 and beyond.

[Download this research report](#) to learn more details about manufacturers' challenges, strategies, management practices and investment priorities in the foreseeable future.

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# Free Energy Audits for Manufacturers

written by Lauri Moon | August 23, 2016

Is your company interested in saving money through pollution prevention strategies and energy efficiency assessments? PennTAP technical advisors and Penn State students will spend a day at your facility examining manufacturing operations to identify opportunities to save energy and reduce waste and operating costs. This service is offered to you at no cost through Environmental Protection Agency (EPA) grant funding, the Department of Energy (DOE) and the Department of Environmental Protection (DEP). PennTAP technical advisors and Penn State engineering students will perform one-on-one pollution prevention and energy efficiency onsite visits, provide recommendations for improvements in energy utilization and waste reduction, prepare and deliver site assessment reports and provide assistance completing grant applications for project implementation.

This free assessment can add a fresh set of eyes for your company to increase efficiency and reduce overhead costs, which can help retain existing jobs or lead to job creation. Contact IMC at [info@imcpa.com](mailto:info@imcpa.com) and learn how to get your free energy assessment.