

THE NEWSLETTER OF THE BDO MANUFACTURING & DISTRIBUTION PRACTICE

BDO MANUFACTURING OUTPUT



AUTOMATION IN MANUFACTURING & DISTRIBUTION: ARE JOB CUTS THE FUTURE?

By Rick Schreiber

We're at the onset of the next big industrial revolution—and the widespread adoption of new technologies, including Internet-connected devices, machine learning and robotics in the manufacturing industry.

Strides in automation have significantly boosted U.S. manufacturers' output in recent years, and the industry is just beginning to understand and exploit the full potential of technology and disruptive supply chain models to reinvent manufacturing as we know it.

And the future of American manufacturing jobs at the end of this evolution? They're going to look very different.

The new administration is focused on American jobs lost to offshoring and relatively cheap foreign labor, but over the long run, automation technologies are set to replace far more U.S. manufacturing positions. The new Treasury Secretary Steven Mnuchin isn't concerned, and was recently quoted saying, "I think that is so far in the future [...] I think we're, like, so far away from that that. [It's] not even on my radar screen."

But we're already seeing it happen. A report from Ball State University found between 2006 and 2013, trade accounted for just 13 percent of lost U.S. factory jobs, while the vast majority of the lost jobs were taken by robots and other domestic factors. But in the same breath that we talk about the elimination of manufacturing

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AUTOMATION

and distribution positions, we also talk about a shortage in technology talent. The reality is companies are hiring—but they're hiring for different skillsets than they were even five years ago. Today's—and tomorrow's—[advanced manufacturing jobs](#) demand a greater emphasis on technological savvy, ingenuity and engineering skills that can't be replicated by a machine—yet.

At the same time, public perception of manufacturers' staffing decisions is changing, triggered by recent high-profile negotiations between manufacturers and the government. The unprecedented use of the Twitter "bully pulpit" to influence corporate decision-making could change the way companies approach and communicate about staffing. The balancing act between reputation management and the need to compete effectively in a global economy could grow more delicate. Still, while layoffs and closures, like those underway at several prominent Indiana factories that plan to move production to Mexico, are [front and center](#) in the nation's collective attention, there are fundamental and permanent changes altering the nature and core capabilities of manufacturing and distribution jobs that have nothing to do with location or immigration status.

On the distribution side, several autonomous vehicle startups are targeting

the trucking industry, which they see as ripe for disruption, according to [The Wall Street Journal](#). While the application of autonomous technology into everyday cars for consumer use is drawing far more attention and hype, artificial intelligence experts believe the technology could master highways before city streets. The trucking industry faces a shortage of experienced, safe drivers, as well as heightening regulation limiting the hours those drivers can work in a day. If automation can increase the speed and efficiency with which products can travel and enhance roadway safety, it could be a boon to the industry. However, it's worth noting this progress is not without setbacks and challenges. Additional technological advancements will be needed to address safety concerns critical to market acceptance of these technologies before car or truck automation goes commercial.

In sectors serving the food and consumer products, we're seeing many manufacturers reevaluate their distribution models as consumer shopping habits change. Simultaneously, pressures to reduce operating expenses have increased. As a result, those industries are moving from direct store to centralized distribution and real-time inventory management, which allows order points to be less tied to warehouse inventory levels and more responsive to demand.

Not only does this enable companies to cut logistics costs and take advantage of efficiencies of scale, but they can also better compete with e-commerce retailers, online grocers and other alternatives that offer customers more choices, faster than ever before. Today's retail and manufacturing customers have little tolerance for delayed or incorrect orders, meaning logistics and distribution—from warehousing to order fulfillment to shipping—must happen at lightning speed and be resilient in the face of disruption. If automation can increase speed and reduce costs, while also maintaining order accuracy and quality control, it's a win-win for manufacturers and their customers. But these optimization strategies may result in closing factories that have been rendered obsolete, leaving the employees who work there in job limbo.

While staffing changes and layoffs may be par for the course during these transitions, long-term cost savings will ultimately come from increased productivity and greater operating efficiencies, which can be driven by a variety of factors. In fact, some of the companies that have been most successful at implementing process improvements have done so without significant layoffs. As the manufacturing industry takes the training wheels off new technologies, certain staffing strategies will remain consistent in ensuring profitability and competitiveness: Implementing and maintaining lean manufacturing principles, minimizing costly labor turnover and selecting staff with the right core capabilities will remain among the most important considerations.

The traditional factory job might be disappearing, but ultimately, greater productivity and lower costs translate into higher profit margins, resulting in more manufacturing jobs, not fewer.



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MIDDLE MARKET MANUFACTURERS: SURPRISINGLY SUITED TO CAPITALIZE ON IOT ADVANTAGES?

By Eskander Yavar

Manufacturers are waking up to the Internet of Things (IoT) opportunity.

According to BI Intelligence, companies will spend nearly \$6 trillion on IoT solutions in the next five years, and by 2020, 24 billion devices will be IoT-enabled. Whether you're a large-scale global manufacturer or a middle market company in growth mode, the IoT holds promise. While middle market companies may be slower on the adoption curve than their larger competitors, they have a critical opportunity to drive innovation and evolve as IoT leaders rather than followers.

MANUFACTURING INDUSTRY IN GROWTH MODE

With the new administration in Washington and an expected pro-business agenda, anticipation is high for growth in the manufacturing industry. According to the NAM Manufacturers' Outlook Survey, more than 93 percent of manufacturers feel positive about their economic outlook, up from 78 percent in December. With opportunities for growth within reach, middle market manufacturers will need to shift focus to battle competition and differentiate in the market. We expect an uptick in deal flow and capital investment, and for many manufacturers, investing in the IoT may be just the competitive edge they need.

IOT ADOPTION IS INCREASING, BUT STRATEGY ISN'T KEEPING PACE

In the new [MPI Internet of Things Study, sponsored by BDO](#), we found that global manufacturers are making significant progress toward IoT integration. Over half of the 374 manufacturers surveyed characterize themselves as IoT-competitive companies, and 14 percent say they're IoT leaders. IoT-enabled manufacturers are also seeing impressive returns on their investments: 72 percent increased their productivity and 69 percent increased their profitability in the last year by applying the IoT to plants and processes.

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IOT ADVANTAGES

Despite the advantages reported, 40 percent of manufacturers do not yet have a strategy in place to apply the IoT to their processes. Whether your organization lacks an IoT strategy, or is in the midst of putting one into action, there are critical components that should be considered in the early stages. For example, our study found that most manufacturers are missing opportunities to take advantage of research tax credits and build in security features. But middle market manufacturers are uniquely positioned to move on the IoT with the right strategy, people, processes and technology to maximize their advantage.

"CRAWL-WALK-RUN" MENTALITY APPLIES TO TECHNOLOGY

It's no secret that middle market companies have to be wise about how they spend and invest. When it comes to the IoT, middle market companies are too big to ignore it, but must avoid mistakes and missteps they can't afford. Middle market companies often take a measured approach to embracing new technology. That means investments are often more carefully planned and staged, boding well for success. For executives looking at the IoT, it's critical to confirm your proposed use cases for the technology will align with your business objectives and drive value. It's critical to first ensure you have the underlying technology and management systems to enable the IoT, understand its performance and measure KPIs that increase value, margins, sales and shareholder value. You can't build an effective 21st century technology rollout on 1980s software and systems.

MIDDLE MARKET CHARACTERISTICS CREATE IOT ADVANTAGES

Once those initial questions are addressed, middle market manufacturers can capitalize on some of the benefits of their size and market position relative to

larger competitors. First, they are nimble and able to get buy-in on transformative projects because change leaders have more access to and attention from the C-suite and board. Projects can move faster because they are one of a few, rather than one of hundreds. Finally, middle market companies have had the benefit of observing competitors' IoT adaption and can now apply lessons learned and cost-saving strategies to their own initiatives.

But that doesn't mean manufacturers should charge forward without laying the necessary foundation. Our study found that less than half of manufacturers are considering cybersecurity at the product conceptualization and design stage, missing opportunities to build in security at the ground level. And 58 percent of manufacturers are not planning to claim tax credits and incentives available for IoT investments, meaning many are leaving money on the table that could help fund innovation.

IoT adaption is a marathon, not a sprint. Middle market manufacturers are well-positioned to unlock IoT's potential given their steady strategic approach and flexibility if they ensure the right systems are in place and the use cases are aligned with value.



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DID YOU KNOW...

The 2017 [Industry Week Salary Survey](#) found 84 percent of respondents reported they were satisfied with manufacturing as a career path.

Up to 670,000 lost manufacturing jobs between 1990 and 2007 can be tied to the effects of industrial robots, a recent [paper](#) by MIT and Boston University economists concluded.

Productivity in the manufacturing sector increased by an average of 1.7 percent annually between 2007 and 2016, according to the [U.S. Bureau of Labor Statistics](#).

According to the NAM [Manufacturers' Outlook Survey](#), more than 93 percent of manufacturers feel positive about their economic outlook, up from 78 percent in December.



THE ROLE OF CFIUS IN CROSS-BORDER MANUFACTURING M&A

By John Lash

Since the end of World War II, the United States has maintained and enjoyed an open posture toward foreign investment.

In 2016, it remained the largest recipient of foreign direct investment (FDI) globally, with an estimated inflow of \$385 billion—a marked 11 percent increase from the year prior.¹ Much of this amount stemmed from several multibillion-dollar cross-border merger and acquisition (M&A) deals, whose total value had increased 17 percent from the 2015 levels.

While foreign buyers remain plentiful and varied, China—with its sights set on getting a strategic foothold in the U.S.—is likely to continue to be one of the U.S.' largest investors, a development that has prompted some national anxiety. National security is an ever-present priority for the U.S. government. As foreign deal-making increases, so will the regulatory scrutiny of cross-border transactions.

THE CFIUS REVIEW PROCESS

A critical element of FDI is the involvement of the Committee on Foreign Investment in the United States (CFIUS). Chaired by the U.S. Secretary of the Treasury, this interagency task force is responsible for the review of FDI that could result in the control of a U.S. business or U.S. critical infrastructure—defined as “a system or

asset, whether physical or virtual... vital to the United States”—as well as the impact these transactions could have on national security.²

While CFIUS review is not a mandatory process, many companies involved in cross-border deals will voluntarily notify CFIUS and initiate a review to gain the benefits of a safe harbor provision. This provision prevents future government challenges to the transaction, including unwinding it or requiring mitigating actions, should the review be cleared successfully. The review process includes up to three stages. The first stage begins with a 30-day initial assessment period, at which point a determination can be made. If unresolved concerns remain, the committee may initiate the second stage, a 45-day investigation period. Should that yield unsatisfactory results, a 15-day presidential review period begins, with the president rendering a final decision. Actual presidential decisions are rare, with only two transactions blocked during the Obama administration. Rather, most transactions are approved, adapted to mitigate CFIUS' concerns or withdrawn by the parties if they suspect that the transaction will not be approved.

CROSS-BORDER MANUFACTURING M&A

CFIUS filings have steadily increased over the last eight years, with manufacturing

CFIUS Red Flags

What constitutes a national security threat? U.S. businesses that may come under CFIUS scrutiny include those that:

- Are in the defense, security and national security-related law enforcement sectors.
- Provide products and services to the government with potential security or defense applications.
- Constitute “critical infrastructure,” e.g., energy production, telecom or transportation.
- Have access to classified or sensitive government information.
- Engage in activities subject to U.S. export controls.
- Are in proximity to U.S. government facilities.

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THE ROLE OF CFIUS

companies consistently representing the largest share of any industry since 2010. According to the most recent publicly available data, 69 manufacturing companies filed notices with CFIUS in 2014, comprising nearly half (47 percent) of all filings. Per the table to the right, the majority of notices within the manufacturing industry have come from the computer and electronic product, machinery and transportation equipment sectors.

When evaluating manufacturing M&A transactions for potential national security conflicts, there are several issues to consider. Manufacturers are vulnerable to national security risks ranging from physical facility security—including the security of facilities that produce key elements or products for defense, transportation or energy infrastructure—to location security, such as the proximity to military installations. Other major risks include those that may undermine U.S. and global supply chain reliability and security, as well as global trade compliance. Cybersecurity—and cyber espionage, in particular—is also top of mind, with concerns about threats from nation-state actors on the rise. FDI that involves the critical manufacturing sector—**defined** by the Department of Homeland Security as those manufacturing industries that are the most crucial for the continuity of other critical sectors and have significant national economic implications—is especially susceptible to scrutiny.

THE FUTURE OF CFIUS

With the current administration's heightened focus on national security and its stated "America First" platform, CFIUS could play a larger role in cross-border M&A activity in the year ahead, with potentially more stringent reviews and/or an increased use of mitigation measures. The practical guidance for identifying factors which constitute a national security risk may also be broadened to include economic security, a net U.S.-benefit

Manufacturing Sector	Number of Notices 2014	% of Total Manufacturing Notices			
		2014	2012-14	2011-13	2010-12
Chemical	7	10%	7%	3%	5%
Computer and Electronic Product	29	42%	44%	48%	50%
Electrical Equipment, Appliance and Component	4	6%	7%	11%	11%
Fabricated Metal Product	1	1%	5%	6%	3%
Food Manufacturing	0	0%	1%	1%	0%
Leather and Allied Product Manufacturing	0	0%	1%	1%	1%
Machinery	9	13%	14%	12%	9%
Nonmetallic Mineral Products	1	1%	1%	1%	0%
Petroleum and Coal Products	1	1%	1%	1%	1%
Plastics and Rubber Products	5	7%	5%	2%	0%
Primary Metal	0	0%	0%	1%	1%
Printing and Related Support Activities	1	1%	1%	0%	0%
Textile Mills	1	1%	1%	0%	0%
Textile Product Milles	0	0%	1%	1%	2%
Transportation Equipment	9	13%	11%	13%	18%
Miscellaneous	1	1%	1%	1%	1%

Source: CFIUS Annual Report to Congress – Report Period: CY 2014

test. At his January confirmation hearing, Treasury Secretary Steven Mnuchin discussed using CFIUS as a tool for "protecting American workers."

The administration's decisions regarding global trade partnerships—including its decision to withdraw from the Trans-Pacific Partnership (TPP) and promises to renegotiate the North American Free Trade Agreement (NAFTA)—may also lead to heavier scrutiny of deals proposed by geopolitical rivals versus those from "friendly" nations. These shifting relationships may also affect if and how the U.S. chooses to participate in parallel national security reviews with other countries. In addition, reciprocal market access may become a greater consideration factor in CFIUS review, with countries that do not "reciprocate," or allow comparable U.S. investment in the same sector, facing more difficulties in obtaining CFIUS approvals than those who do.

Regardless of what lies ahead, manufacturers must be cognizant of

how an M&A transaction may impact the reliability, availability and integrity of their resources, production activity and intellectual property, as well as any direct or indirect impacts on critical infrastructure. And to avoid a compliance bottleneck, manufacturing organizations (and their potential buyers) must proactively address potential national security risks so as to reduce the security optics of the transaction.

1 Global Investment Trends Monitor: February 2017 (Vol. 25, Rep. No. 25). (n.d.). United Nations (UNCTAD). Retrieved from http://unctad.org/en/PublicationsLibrary/webdiaeia2017d1_en.pdf

2 Lash, J. (2016, June 6). National Security a Top Priority in Cross-Border Deals. Retrieved from http://www.themiddlemarket.com/news/business_services/national-security-a-top-priority-in-cross-border-deals-260721-1.html



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Perspective in MANUFACTURING

A FEATURE EXAMINING THE ROLE OF PRIVATE EQUITY IN THE MANUFACTURING SECTOR.



As the healthcare industry embraces value-based payment models and providers evolve their business models to focus on outcomes, they're looking to achieve more with less and optimize productivity.

All the while, new technologies and automation are opening the door for innovation in manufacturing facilities across industries and enabling faster, smarter production—which is particularly good news for manufacturers serving the healthcare and life sciences industries.

Medical devices are subject to stringent guidance and jurisdictional regulations—and that brings up costs and liability in spades, including false claims liability, potential recalls and costly subsequent regulatory approvals. More compliance changes, including potential reductions in regulation, could be on the horizon. In March, President Trump nominated Scott Gottlieb (former senior fellow with The BDO Center for Healthcare Excellence & Innovation) to FDA commissioner, whose confirmation at press time was pending final Senate vote. Industry change opens opportunities for private equity firms to invest in medical device manufacturers to help them leverage new technologies, streamline processes and achieve cost savings in the face of a turbulent regulatory environment.

Several notable private equity deals and bids emerged recently in the medical device and pharmaceutical manufacturing sectors, including:

- ▶ MedPlast Inc., a global services provider in the medical device industry backed by private equity firms JLL Partners and Walter Street Healthcare Partners, will acquire Vention Medical's device manufacturing services in a deal expected to close in the second quarter, reports *PE Hub*. Terms of the deal were not disclosed. According to a press release, the acquisition will more than double MedPlast's size. The company aims to expand its capabilities in assembly and packaging with the acquisition and increase its global footprint to 22 manufacturing facilities.
- ▶ European private equity firm EQT Mid Market bought conveyor manufacturer Dorner Holding Co. from Pittsburgh-based private equity firm Incline Equity Partners, the owner since June 2012. The deal closed on March 15 and terms were not disclosed. Dorner services the medical and pharmaceutical industries, as well as packaging and food handling. EQT Mid Market targets companies with strong market positions and potential for global growth in the middle market and plans to grow Dorner organically and strategically, according to Milwaukee Business News.
- ▶ On the pharmaceutical manufacturing side, German drug maker Stada Arzneimittel AG has found itself in a red-hot bidding war. Private equity firms Advent International Corp., Permira, Cinven Ltd. and Bain Capital made offers, with Chinese company Shanghai Pharmaceuticals Holding Co. reportedly showing interest as well. Bloomberg reports Stada's shares have rallied nearly 70 percent in the past year to \$55.81, including a jump in mid-February of 13 percent in a single weekend. In an effort to draw in bigger buyout offers, the company has laid out numerous cost-cutting measures, including optimizing its supply chain management and procurement process, reports *FiercePharma*.

FUTURE PERSPECTIVES: WHAT'S UP NEXT FOR MANUFACTURING INVESTORS

President Trump has connected with cabinet members and members of the business community recently to discuss his infrastructure plan, which will likely lean on public-private partnerships, according to *Axios*. Building materials, steel and equipment manufacturers who'd be tapped for bridge-and-tunnel infrastructure projects could be primed for investment. *Axios* also reports digital infrastructure could be a focus of the plan, including rural broadband access, meaning opportunities could emerge for investment in manufacturers of mobile and digital infrastructure.

MARK YOUR CALENDAR...

MAY

May 8-11

RAPID + TCT 2017: 3D Printing & Additive Manufacturing Event

David L. Lawrence Convention Center
Pittsburgh

May 15-17

Smart Manufacturing Summit

DoubleTree by Hilton Hotel Seattle Airport
Seattle

May 23

NAM Leading Edge Executive Forum on Supply Chain Innovation

Hotel Sorella
Houston

JUNE

June 20-21

NAM Manufacturing Summit

Grand Hyatt Washington
Washington, D.C.

BDO MANUFACTURING & DISTRIBUTION PRACTICE

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