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■ *MDM Special Report: Disruptive Technologies*

The Rise of Robots in Distribution

Warehouses are the next frontier for automation

Industry-watchers say that robotics technology is growing more sophisticated and can increasingly perform a wider range of tasks and collaborate with humans. This article examines the potential impact on distribution operations.

This article is part of MDM's Disruptive Technologies Special Report.

By Anna Padilla

Robotics today encompasses more than the Hollywood vision of a bunch of Star Wars' R2-D2s running around warehouses, picking and packing orders. The definition can be expanded to a much wider spectrum of technology, says Guy Blissett, specialist leader for wholesale distribution for Deloitte Consulting.

"I think it is worth embracing a broad definition or vision of robotics and automation. Robotics doesn't have to be a humanoid-like machine with arms and legs and a head that can walk. Robotics can take many different forms," he says. Robotics can include pallet shuttles and automated storage retrieval systems, as well as automatic guided vehicles and autonomous indoor vehicles.

Material handling robots can be used for tasks such as bin picking, case and pallet transportation, robotic pick-and-place solutions, conveyor design, lift-assist systems, integrated sortation systems and more, the Robotics Industry Association says.

These systems continue to grow more sophisticated and can increasingly perform a wider range of tasks and collaborate with and even learn from humans, according to a report from Deloitte, Intelligent Automation: A New Era of Innovation.

Thanks to its purchase by Amazon in March 2012, one of the most widely known robotics companies is KIVA Systems. KIVA Systems uses automation technology for distribution centers that incorporates mobile robots and control software. These orange ottoman-shaped robots are sent on missions by a central computer system to retrieve inventory pods that are brought back to pick and packing stations.

These robots can handle up to 1,000 pounds of weight and are equipped with a rechargeable battery system, as well as internal sensors that allow the robot to move freely within a warehouse without crashing into other robots or things.

According to the *Material Handling & Logistics U.S. Roadmap*, robots today are more capable, more intelligent and less costly than at any other time in history. And *A Roadmap for US Robotics – 2013 Edition*, quoted by the same report, says that by 2025, any technical and economic obstacles such as the ability to easily and effectively identify items and manipulate a picking arm to pick them will be overcome.

Jon Schreibfeder, an inventory management consultant in wholesale distribution and manufacturing, says that he is seeing more and more automation in the warehouse, including pick-to-light and voice-picking systems, as well as automated shipping conveyor systems.

"I'm not seeing that much in terms of actual robots in the warehouse yet, but I'm sure it's coming," he says. On the other hand, he has worked with companies who have implemented driverless carts that are directed through the warehouse via sensors in the floor.

It is difficult to imagine robotics and automation not playing a key role in distribution centers in the future, according to

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INSIDE

PERSPECTIVE ■ Commentary by Lindsay Konzak

Don't Invest in Technology for Technology's Sake

Wholesale distribution will never be considered a cutting-edge industry when it comes to technology. Distributors in most sectors are not quick to adopt technology nor to buy into the latest fad. While I sometimes wish more distributors would move a little less slow in pursuing the advantages technology can bring, there is benefit in taking a more conservative approach.

After all, not all technology is good for all businesses. And at a broader level, not all strategies work for all companies, either. Just because your biggest competitor is doing it doesn't mean you need to, too. All new investments should be examined in light of your business strategy.

In a recent conversation with Jon Schreibfeder, considered one of the top inventory management experts in this industry, he spoke to this.

To him, technology "is a tool like a hammer or a saw or a wrench." In other words, a distributor should not adopt technology just because it can. "I don't like technology just for technology's sake," Schreibfeder says.

He wants to be sure that his clients are approaching technology intelligently. He provided this analogy: "You could hire a Greyhound bus to take you to work every day, but it's probably too big for your needs."

True. The good news is that the cost of technology is going down, its power is going up, and it's easier than ever to find a technology solution that will fit your business' needs.

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This marks my final perspective for *Modern Distribution Management*. I am resigning my post as editor to pursue a new opportunity, handing MDM's reins to the very capable Jenel Stelton-Holtmeier.

In my more than eight years leading MDM's research, I've learned so much. This industry is filled with men and women who literally grew up in the warehouse. I have appreciated their knowledge of the industry and of business in general – and their willingness to share that with me.

Thank you for teaching me so much, and best wishes for continued success in your business.

For future questions or comments on the content in these pages or help with finding information on a topic, please reach out to Jenel at jenel@mdm.com or call her at 720-204-4611.

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Robots
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Ken Tinnell, robotics general manager of the robotics integrator Bastian Solutions. "We believe we will see a massive amount of adoption. We don't think we can fill the demand in the next five years without pretty significant growth on our side," Tinnell says.

Robotics integration is not only realistic for Fortune 500 companies. Small to mid-sized distributors can take advantage, as well, industry observers say.

"The question shouldn't necessarily be should I or should I not buy a robot," Blissett says. "But how might robotics transform the value chain around me, and what role might I play in accelerating that transformation?"

The Growth of Robotics

The automotive industry has been using traditional robots for decades. And according to the Robotic Industries Association, the automotive industry still represents more than half of total orders, but non-automotive industries are rapidly increasing their orders of robots.

Top industries for growth in the first quarter 2014, according to RIA, were food and consumer goods (up 91 percent), plastics and rubber (up 55 percent) and life sciences (up 36 percent).

"In total, the overall number of robots ordered for use in non-automotive industries grew 18 percent over the first quarter 2013," says Jeff Burnstein, president of RIA. That compares with the overall units ordered increasing by 1 percent.

While much of the growth is in manufacturing, the robotics industry is also seeing increased interest and adoption for use in warehouses.

"Thanks to the automotive industry, they have improved the reliability by giving feedback to the robotic manufacturers that are now making a highly reliable piece of equipment," Tinnell says. "Ten to 15 years ago, a robotic arm would cost a million dollars. Now you can buy that same robot for $50,000. That is a 95 percent decrease in cost."

In the highly repetitive manufacturing environment of the automotive industry, robotics technology was refined, proving robotics to be a sensible business option and advanced enough to be refurbished into a solution for distributors.

The Business Case

"The use of automation will continue to drive more efficiency, improve performance, reduce processing time and lower cost for distribution operations," says Ken Ruehrdanz, distribution systems market manager of Dematic.

Robotics and automation integrators such as Aesynt, Dematic and Bastian Solutions see their roles as educating distributors about the wide array of robotic and automation solutions available. They are also focused on building a business case for their solutions.

"Customers we work with are just learning about the opportunities at a higher level. For the longest time, their vision was siloed and not very opportunistic. I would say companies are gun shy," says Neil DiBernardo, director of professional services of Aesynt. "You have to change their viewpoint on robotics."

Aesynt's ROBOT-Rx is a medication vending machine that fills prescriptions. The robotic system was originally developed by pharmaceutical distributor McKesson Corp. It was sold to a private equity firm in late 2013 and renamed Aesynt.

The system allows pharmacists to spend more face time with doctors and patients. The robot picks the medication and places it in barcoded envelopes. These envelopes are sent to the pharmacist, and the barcodes connect through a computer system that automatically records patient history and drug inventory.

In a warehouse, the application of robotics and automation could shift the work in distribution centers from a person-to-goods process to a goods-to-person process.

This shift from having a worker walk through distribution centers to retrieve goods to robotic and automation systems bringing items to the worker not only makes business sense but also can help the attitude of distribution center workers, says Lou Mangino, vice president of operations at Benco Dental, Pittston, PA, a distributor of dental supplies and equipment.

Benco Dental has used a Dematic zone-routed conveyer system in its distribution centers since 2002. Mangino says the system "just makes life easier."

Mangino says Benco has seen a 15 percent to 20 percent productivity increase since installing the convey and sort systems in its distribution centers.

"You are using a machine that you pay for once, that you have to feed and care for a little bit, that just provides a ton of benefit not only for the associates but for the customers," Mangino says. "You get more accurate picks, you get more efficient picks, and you reduce your overall cost structure. So you are passing that along

to bottom-line company profits and benefits to your customers."

Tinnell says cost is falling for the systems themselves. "For distribution centers, cost is very much in their favor, and that is why there is such a rapid adoption of robotics right now," he says. "Typically returns on investments for robotics right now are less than a year maybe two depending on what they are doing."

But distributors should always consider why they want to implement this technology, and not just implement new technology for technology's sake, Schreibfeder says. "With any technology we have to see a payback in a reasonable amount of time."

Robotics integrators like Bastian Solutions offer the ability to retrofit and refurbish robotic systems as a company's business model changes. These companies hope this flexibility will increase distributors' adoption of the technology.

Baxter, a robot produced by Rethink Robotics, is one of the most humanoid-like robots in industrial robotics. Baxter is designed to work alongside workers using a behavior-based "common sense" interface that can be taught in 15 minutes.

There is ongoing fear that robotics will eliminate jobs in distribution centers and other industries. The Deloitte report encourages companies to develop talent strategies, such as staffing and training, to adapt to how automation changes job descriptions and organizational models.

Benco focused on maintaining the people side of distribution when integrating robotics into its operations. "We really tried to engineer this into the system. How can we make the system better for the employees?" Mangino says.

Adoption Advice

Distributors considering adopting robotics or automation into their warehouses should adjust their perception of robotics to take advantage of the technology, Aesynt's DiBernardo says.

"The more progressive the customer is, the more opportunities we can help them with," DiBernardo says.

Finding a good technology partner is critical. A distributor should work with an integrator who will match its technology to the company's needs. "Balance the technology you want to use with the ROI and the size of your business," Benco's Mangino says.

A company should visit other distributors using robotics or automation to find the technology that fits best with its needs.

A distributor should also ensure that the system it chooses can easily add technology later to accommodate the business as it evolves.

The last step is modeling.

"Definitely model because modeling will really tell you what automation/robotic system you will want to use," Mangino says. "We marry up the system based on our volumes and our needs at the time."

Visit www.mdm.com/robots to view videos illustrating the ideas outlined in this report.

■ *MDM Special Report: Disruptive Technologies*

Behind the Drivers of Driverless Delivery

Drones & driverless cars face obstacles to near-term business adoption

Of all the technologies explored in MDM's Disruptive Technologies Special Report, drones and driverless cars are the least close to fruition. The technology is advancing quickly, but many obstacles stand in the way of a practical application for businesses.

This article is part of MDM's Disruptive Technologies Special Report.

By Scott Merrill

As Winston Churchill once said, "It is always wise to look ahead, but difficult to look farther than you can see."

In the case of drones, driverless cars and other technologies that used to be better suited for Star Trek than the real world, it's tough to know how much of a threat or disruption they are to how distributors traditionally approach delivery and other operations.

Most experts say that the technologies are still "farther than you can see." There's no fear that drones are going to take over our skies in the near-term. And driverless cars still have a long way to go. But the technology itself is developing quickly.

"The big barrier is not the technology; it is far more the regulation and the legislation that

has to be put into place to get people comfortable with the idea of drones making deliveries and taking pictures and unmanned vehicles driving up and down the roads," says Guy Blissett, specialist leader for wholesale distribution for Deloitte Consulting.

Here's a closer look at the current and potential uses for these technologies:

Drones

Ever since the 60 Minutes television segment featuring Jeff Bezos on Amazon Prime Air, which would deliver goods by drone, the industry has been abuzz with talk of drones. But is the hype warranted?

Logistics giants UPS and FedEx have also expressed interest in testing drones for the final miles of a delivery, although they have been much quieter than Amazon. UPS told *The Verge* online: "The commercial use of drones is an interesting technology, and we'll continue to evaluate it."

Research firm Frost & Sullivan estimates the global market for small, unmanned aerial vehicles at $250 million to $300 million, according to BusinessWeek. Much of the focus seems to be on the military and consumer markets; drone manufacturers such as DJI are targeting hobbyist consumer markets with drones that include HD cameras. Movie studios are investing in drones to round out their filming capabilities.

"I'm not sure that it is ever going to be part of distribution," says Jim Thompson, former CEO of Vallen Corp., which is now part of Sonepar, and principal with NewMGroup, a consulting group.

Thompson, who owns a drone and has tested the technology himself, says that he has safety concerns when looking at drones as a method for delivery. He says drones tend to kick up a lot of dust when they drop down low; they also have exposed fan blades that could hurt someone if they get too close. In his experience, drones also can get caught in updrafts.

Privacy concerns are top of mind for most though. "You now have a high-definition camera that literally looks into people's homes during deliveries. You can't help it, it's going right to the front door," Thompson says.

According to Thompson, drones could be feasible if used on a line-of-sight basis within a closed, controlled environment, such as within a distribution center or on a job site.

"I think there is an application for that. Everyone's wearing hardhats and safety glasses. I think that's what this is all about," Thompson says.

Blissett agrees. "I could see this being used is from a sort of reconnaissance, survey, photography perspective," he says.

For example, Blissett says drones could be used at a construction site. A distributor could launch a low-cost drone to fly around the site, through the building and into other less accessible areas to assess how far along the project is and gauge inventory levels. The distributor may also be able to use them to assess what the likely needs will be going forward. "To me, that creates a tremendous amount of opportunity."

Another application for drones could be in the distribution center. Qimarox, a manufacturer of material handling systems, has been toying with the idea of using drones to build pallet loads.

"Because of the limitations in terms of capacity and ergonomics, using people to stack goods on pallets is no longer an option for most manufacturers of fast-moving consumer goods," Jaco Hooijer, operational manager of Qimarox, says on the company's website. "Using drones, they can fully automate the palletizing process, while retaining the much greater level of flexibility and scalability entailed by using real people."

Qimarox however noted drones' weight limitations; currently, it says, they can lift products up to 2.3 kilograms, or a little more than 5 pounds. The company says that technology is developing quickly so that weights up to 10 kilograms, or 22 pounds, would be "possible within the foreseeable future."

Driverless Cars

While the technology driving driverless and self-driving cars may still be a ways off from widespread adoption, it's coming faster than you may expect, says Raj Rajkumar, a professor at Carnegie Mellon and co-director of the General Motors-Carnegie Mellon Vehicular Information Technology Collaborative Research Lab.

"The technology is progressing pretty rapidly, maybe faster than what people were anticipating even a couple of years back," Rajkumar says. "In terms of adoption, it will still take time. The driving process is a very complicated process, one of the most complex activities we undertake as human beings. To reach completely driverless vehicles without any human being in the car, we are probably at least, in terms of adoption, 10 years away."

Rajkumar cites four challenges that driverless and self-driving cars face: affordability, social acceptance, safety and liability. Affordability will become less of an issue as the technology

matures, but remains a significant hurdle for adoption. Social acceptance, or people being "comfortable with the concept of vehicles running around without anybody in them," is the second hurdle, he says.

From a safety perspective, while the technology is sophisticated, it still isn't able to handle unknown obstacles as effectively as would be needed for full adoption. Things such as a caved-in road, an accident or severe weather conditions could all throw a loop in the ability of the car to continue its navigation.

"The road conditions need to be right, the lighting conditions need to be right, and the weather conditions need to be right," Rajkumar says.

Finally, there is liability. "If anything goes wrong, who's liable? Is it the person who owns the car? The person who deploys the car in a driverless fashion? Or is it the insurance company, or the manufacturer? Agencies like the National Highway Transportation Safety Administration have to create a framework that will in turn basically dictate what can happen; should not happen in driverless cars. Progress needs to happen on all fronts."

What role can driverless and self-driving cars play in the more immediate future in distribution? According to a Deloitte "Signals for Strategists" report, some companies are using them for less traffic-intensive situations, such as transporting materials around a mining site.

"International mining company Rio Tinto is using a fleet of autonomous hauling trucks developed with Komatsu to improve efficiency and worker safety in its Australian iron mines," the Deloitte report says. "Earlier this year, its fleet, which can move and navigate with limited human intervention, reached the milestone of moving 100 million tons of material. BHP Billiton, another major mining company, has also announced investments in mine automation."

Despite this technology being heavily pursued at the moment, distributors should expect its development to be slow.

"The automotive industry seems to be looking at it on an incremental basis," Rajkumar says. "It's not the overnight 'no person in the car,' but incrementally adding automation capabilities. Cruise control becomes adaptive cruise control, for example."

When the technology is matured to the point of being feasible for delivery operations, the benefits could include things such as decreased accidents and decreased fuel costs, through the use of convoying or platooning.

"Vehicles driving on the highway could, for example, drive very close to each other – and therefore occupy less space on the highway – and because they travel close to each other, you get the benefits of aerodynamics, and you have to spend less fuel," Rajkumar says.

Fleet Tracking Technology

Technologies already in place today can help a distributor improve their delivery operations. As technology improves, more advanced fleet tracking and management is available. By better monitoring their fleets, distributors can more effectively manage costs and get a better view of their driver's habits. Companies like GPS Insight, Teletrac and Fleetmatics offer services that provide a real-time view of vehicles out for delivery.

"All of this can boil down into identifying inefficiencies in a fleet's performance and being able to create actionable intelligence so management can take corrective action," says Harold Leitner, vice president of business development for GPS Insight, a software company for vehicle tracking.

GPS Insight provides tracking software that uses real-time data, collected from a distributor's fleet, to help manage and monitor the efficiency of the distributor's logistics.

"We found that the distribution clients who truly incorporate location-based data into their day-to-day operations are seeing huge increases in driver productivity – in the time it takes to create routes and dispatch vehicles – all of which affects the bottom line," he says.

Leitner talks about one company that, through the monitoring of its fleet's down time, was able to make an extra stop each day, ultimately resulting in an extra $300,000 in revenues each month.

By using fleet management software, distributors can also monitor things such as cycle times, gas consumption, accidents and even "high-G" events, such as a hard braking or high-speed turn.

Visit www.mdm.com/drones to view videos illustrating the ideas outlined in this report.

Access the full series on disruptive technologies at www.mdm.com/disruptive_tech.

Zandi: Economy to Pick Up Through 2015

Economist says there is reason for optimism thanks to global trade, housing

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Mark Zandi, chief economist at Moody's Analytics, and Bradley Holcomb of the Institute for Supply Management provide their perspectives on economic conditions in 2014-2015.

By Jenel Stelton-Holtmeier

The economic road ahead looks more stable, according to Mark Zandi, chief economist at Moody's Analytics. After several years of GDP growth at the "OK level" of about 2 percent, Zandi is forecasting growth to pick up to 3 percent in 2014 and reach 4 percent in 2015.

"Four percent is booming … but 4 percent can't be sustained for very long," Zandi said in an interview with MDM.

The reasons for his optimism at least in the near-term include his expectation that growth in global trade will continue over the next two to three years, and housing will be a source for growth. In addition, "with the tax hikes and spending cuts behind us, that drag on growth will fade," he says.

Another good sign is that there are no indications that raw material and commodity prices will increase significantly in the near future. "Emerging markets will continue to grow more slowly," Zandi says, "and change in their demand is what drives global commodity prices."

In fact, "there's a healthy inflow on the raw materials side," says Bradley Holcomb, chairman of the Institute for Supply Management Manufacturing Business Survey Committee. The only commodity reported to be in short supply in the May 2014 ISM Manufacturing Report on Business was truck freight services. Copper prices were up for a second month, but not significantly, Holcomb says.

Manufacturing revenue growth is expected to outpace overall GDP growth in 2014, Holcomb says, and current forecasts are significantly higher than what the ISM committee expected just a few months ago.

Revenue in 2014 is expected to increase 5.3 percent for the year, compared to 3.4 percent in 2013. In December, the ISM committee forecast manufacturing revenue growth of 4.4 percent.

On top of revenue growth, capital expenditures are expected to increase 10.3 percent in 2014; capital expenditures grew 8 percent last year. But even more telling, according to Holcomb, is that all 18 industries tracked in the Manufacturing Report on Business are growing, something that hasn't occurred in several years. "It's never happened under my watch (at ISM)," Holcomb says.

Uncertainty has been dampening growth over the past few years, Zandi says, but there's a shift in the "collective psyche" about the health of the economy.

"Washington should fade from the front pages," he says. "… The brinksmanship that shut the government down last year was really costly politically for both Democrats and Republicans, and no one wants to go down that path again."

A budget deal was passed that will eliminate that barrier for a few years, and the treasury debt limit was increased for at least a year – meaning Congress won't be toying with the idea of letting the U.S. default on its existing debts.

Jobs will continue to be a key component of economic growth. "(Jobs) are both a signal of strong growth and a driver of growth," Zandi says. More jobs mean companies are hiring and expanding. And more jobs mean more income, which leads to more spending and more confidence.

The U.S. has a competitive labor cost structure because labor costs are low, and there is a very compelling energy story unfolding, he says. As a result, the long-term prospects for job growth in the U.S. are very good.

When job growth reaches 250,000 to 300,000 jobs per month, "that will be sign that we're off and running," Zandi says. Currently, growth is hovering around 200,000 per month.

But wage growth remains slow, which has the effect of reducing the labor force. "It's certainly not enough to pay for child care costs, commuting costs and all the other costs related to working," Zandi says. "So we see a lot of workers just stepping out of the work force and not being counted as unemployed."

Labor costs in the U.S. today are at about the same level as where they were 10 years ago; in manufacturing, they're where they were about 30 years ago.

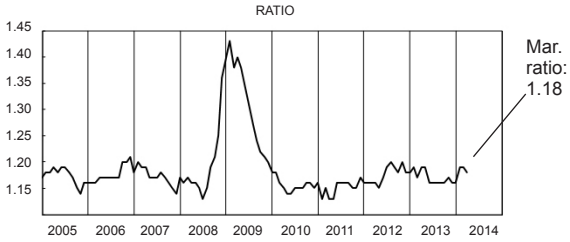
While through the recession and even into the recovery, older workers were putting off retirement, that segment of the work force is starting to leave. "Five years from now, our biggest problem is not going to be unemployment, it's going to be a lack of labor," Zandi says.

Monthly Wholesale Trade Data

Wholesale revenues in March were $443.4 billion, up 1.4 percent from February and up 6.5 percent from March 2013, according to the U.S. Census Bureau. March sales of durable goods were up 1.4 percent from last month and were up 4.9 percent from a year ago. Sales of nondurable goods were up 1.5 percent from February and up 7.9 percent from last March.

Monthly Inventories/Sales Ratios of Merchant Wholesalers: 2005-2014

(Estimates adjusted for seasonal and trading-day differences, but not for price changes)



Source: U.S. Census Bureau

Inventories. Inventories of wholesalers were $525.2 billion at the end of March, up 1.1 percent from February and up 5.9 percent from March 2013. March inventories of durable goods were up 0.7 percent from last month and were up 6.2 percent from a year ago. Inventories of hardware and plumbing and heating equipment and supplies were up 1.8 percent from February. Inventories of nondurable goods were up 1.7 percent from February and were up 5.4 percent from last March.

Inventories/Sales Ratio. The March inventories/sales ratio for merchant wholesalers was 1.18. The March 2013 ratio was 1.19.

Sales and Inventories Trends: March 2014

NAICS Code	Business Type	Sales $Millions	Inventory $Millions	Stock/ Sales Ratio	Percent Change Sales 2/14-3/14	Percent Change Sales 3/13-3/14	Percent Change Inventory 2/14-3/14	Percent Change Inventory 3/13-3/14
42	**U.S. Total**	**443,358**	**525,157**	**1.18**	**1.4**	**6.5**	**1.1**	**5.9**
423	**Durable**	**202,399**	**321,589**	**1.59**	**1.4**	**4.9**	**0.7**	**6.2**
4231	Automotive	32,726	53,318	1.63	0.0	1.5	1.9	9.5
4232	Furniture & Home Furnishings	5,185	8,615	1.66	-0.6	7.6	0.6	8.0
4233	Lumber & Other Construction Materials	9,826	14,902	1.52	1.6	2.4	0.3	7.0
4234	Prof. & Commercial Equip. & Supplies	38,369	40,774	1.06	1.2	2.9	1.2	6.1
42343	Computer Equipment & Software	21,891	17,809	0.81	3.7	3.5	1.6	6.4
4235	Metals & Minerals	13,480	27,035	2.01	2.2	6.8	-1.0	-1.3
4236	Electrical Goods	36,059	35,468	0.98	4.2	5.7	0.6	1.5
4237	Hardware, Plumbing, & Heating Equipment	10,019	19,175	1.91	1.9	6.9	1.8	2.4
4238	Machinery, Equipment & Supplies	38,160	95,096	2.49	0.8	13.3	0.5	11.5
4239	Miscellaneous Durable	18,575	27,206	1.46	-0.2	-3.2	0.0	-0.7
424	**Nondurable Goods**	**240,959**	**203,568**	**0.84**	**1.5**	**7.9**	**1.7**	**5.4**
4241	Paper & Paper Products	7,906	7,294	0.92	1.9	9.8	-1.5	5.1
4242	Drugs	39,119	41,687	1.07	2.6	10.7	0.6	20.0
4243	Apparel, Piece Goods & Notions	12,561	24,461	1.95	2.3	9.0	1.6	5.2
4244	Groceries & Related Products	51,804	33,239	0.64	3.2	10.1	2.5	2.0
4245	Farm-product Raw Materials	20,595	23,259	1.13	6.0	-0.4	3.1	1.2
4246	Chemicals & Allied Products	10,868	12,500	1.15	-0.4	7.4	1.0	7.0
4247	Petroleum & Petroleum Products	67,642	20,770	0.31	-0.2	13.9	3.3	-3.6
4248	Beer, Wine & Distilled Beverages	10,676	14,608	1.37	-0.9	1.3	1.3	4.3
4249	Miscellaneous Nondurable Goods	19,788	25,750	1.30	-2.1	-7.5	1.4	1.4

U.S. Bureau of the Census, Current Business Reports, Monthly Wholesale Trade, Sales and Inventories Series: MDM compilation and analysis.
Adjusted for seasonal and trading day differences. Figures for sales and inventories are preliminary adjusted estimates.

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Industrial & Construction Markets Update

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March Manufacturing Tech Orders Up 2.9% Year-Over-Year

March U.S. manufacturing technology orders were $492.8 million, according to the Association for Manufacturing Technology.

This total was up 38.5 percent from February and up 2.9 percent when compared with March 2013. With a year-to-date total of $1.2 billion, 2014 is up 0.9 percent compared with 2013.

"As these figures indicate, along with strong readings for the PMI, durable goods orders and motor vehicle sales, manufacturing continues to be a leader in economic growth," said AMT President Douglas Woods.

"It's noteworthy that this was the strongest month for orders since September 2012, an IMTS month, though order delays caused by a harsh winter certainly interrupted the flow of business at the start of the year.

"As we head toward IMTS 2014, we expect continued expansion through the rest of this year and likely into 2015."

The USMTO report, compiled by the trade association representing the production and distribution of manufacturing technology, provides regional and national U.S. orders data of domestic and imported machine tools and related equipment.

Northeast Region

At $67.5 million, manufacturing technology orders in the Northeast Region in March were up 5.5 percent when compared with February's $64 million.

Southeast Region

Year-to-date 2014 manufacturing technology orders in the Southeast Region through March totaled $106.1 million.

North Central-East Region

March manufacturing technology orders in the North Central-East Region totaled $200.3 million, up 145.1 percent from February's $81.8 million and up

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Distributor News

Grainger, Chicago, IL, reported sales for April increased 5 percent year-over-year. Results for the month included a 1 percent increase from acquisitions and a 1 percent decline from unfavorable foreign exchange.

WESCO International Inc., Pittsburgh, PA, provider of electrical MRO products and construction materials, announced that **WESCO Distribution Inc.** has agreed to acquire **Hi-Line Utility Supply Company**. Hi-Line Utility is a provider of utility MRO and safety products, as well as rubber goods, testing and certification services, with annualized revenues of $30 million from two branches in Elgin, IL, and Millbury, MA.

UK-based **Wolseley plc**, distributor of plumbing, heating and building materials, confirmed it is in discussions with subsidiaries of **Frauenthal Holding AG** to dispose of **ÖAG**, Wolseley's Austrian plumbing and heating business, which had revenues of £239 million (US$403 million) in 2013.

DXP Enterprises Inc., Houston, TX, reported sales for the first quarter of $348.5 million, an increase of 20.1 percent year-over-year. Organic sales were up 1.7 percent. Profit decreased 12.2 percent to $11.6 million.

Interline Brands Inc., Jacksonville, FL, has named Fred Pensotti CFO, effective May 19.

Airgas Inc., Randor, PA, has agreed to build a new air separation unit in Calvert City, KY. The air separation unit will supply **Westlake Vinyls Inc.**, and is expected to be running by the spring of 2016.

Electronics distributor **Arrow Electronics Inc.**, Englewood, CO, has named Andrew Bryant as COO of the company's global components and global enterprise computing solutions businesses.

Stock Building Supply Holdings Inc., Raleigh, NC, has opened two new structural component plants, serving customers in the Raleigh-Durham, NC, and Salt Lake City, UT, metropolitan areas.

Headwaters Inc., South Jordan, UT, has acquired Metals USA's roofing products business, **Gerard**. Gerard sells seven primary metal profiles, including tile, barrel vault and canyon shake.

CCMP Capital Advisors LLC has agreed to acquire **The Hillman Companies Inc.**, a fasteners and builder's hardware distributor, from **Oak Hill Capital Partners** for $1.5 billion.

Amazon Hose & Rubber Company, Orlando, FL, has moved into a new 50,000 square-foot facility, built to meet the demands of its customer base.

AZ Partsmaster, Phoenix, AZ, has broken ground on a new facility that will serve as its corporate headquarters and a distribution center for the Phoenix market. Slated to open in November, the new facility will double its footprint in the Phoenix market.

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News Digest
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Beacon Roofing Supply Inc., Herndon, VA, reported sales for the fiscal second quarter ended March 31 of $384.9 million, a 7.5 percent decrease year-over-year.

United Electric Supply Company, New Castle, DE, has acquired **County Electric**, Lansdale, PA,and its subsidiaries **ESCO** and **I/O** in Pennsylvania and **Fairlite Electric** in New Jersey, according to The Electrical Distributor.

The Home Depot, Atlanta, GA, reported sales for the first quarter of $19.7 billion, a 2.9 percent increase from a year ago. Profit increased 12.5 percent to $1.4 billion.

Economic News

Construction firms added jobs in 39 states and the District of Columbia over the past 12 months and in 29 states and D.C. between March and April, according to an analysis of government data by the Associated General Contractors of America.

Privately-owned housing starts in the U.S. in April were at a seasonally adjusted annual rate of 1,072,000. This is 13.2 percent above March and 26.4 percent above April 2013.

Industrial production decreased 0.6 percent in April after having advanced 1 percent in February and March according to the Federal Reserve. **Capacity utilization** for total industry decreased in April to 78.6 percent.

March U.S. cutting tool consumption was $171 million, according to the U.S. Cutting Tool Institute and the Association for Manufacturing Technology. This total was up 7.8 percent from February and down 2.5 percent from March 2013.

Wholesale prices increased 0.6 percent in April, seasonally adjusted, the U.S. Bureau of Labor Statistics reported. The 0.6 percent increase in prices for final demand can be primarily traced to the index for final demand services and final demand goods, which both rose 0.6 percent.

The **Power Transmission Distributors Association Business Index** reading for the first quarter was 63.6, compared with a 60 reading for the fourth quarter index of 2013. Participants anticipated 6 percent growth in 2014, a decrease from the 7 percent growth anticipated in the fourth quarter of 2013, which suggests expectations of

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Calculation of MDM Inflation Index for April 2014

		BLS Price Indices Apr. '14	BLS Price Indices Mar. '14	BLS Price Indices Apr. '13	% Sales Weight	Weighted Indices Apr. '14 (1)X(4)	% Change Apr. '14 Mar. '14	% Change Apr. '14 Apr. '13
1136	Abr. Prod.	578.6	572.3	554.8	19.1	110.51	1.09	4.28
1135	Cutting Tools	494.0	493.2	488.1	18.9	93.37	0.16	1.22
1145	Power Trans.	802.0	800.4	798.2	15.4	123.50	0.20	0.47
1081	Fasteners	510.4	510.7	507.2	9.0	45.94	-0.05	0.64
1149.01	Valves, etc.	962.4	963.4	940.9	7.6	73.14	-0.10	2.29
1132	Power Tools	362.0	360.7	348.9	6.5	23.53	0.37	3.75
1144	Mat. Handling	579.4	576.3	567.1	6.2	35.92	0.55	2.17
0713.03	Belting	838.8	838.8	867.5	6.1	51.17	0.00	-3.30
1042	Hand Tools	783.6	779.2	771.0	8.1	63.47	0.57	1.63
108	Misc. Metal	477.2	478.3	475.7	3.1	14.79	-0.24	0.30
	"New" April Index	331.9	April Inflation Index			635.35	0.33	1.45
	"New" March Index	330.9	March Inflation Index			633.25		
			April 2013 Inflation Index			626.25		

New index reflects 1977-100 base other #: 1967 To convert multiply by .52247

Amazon's Wholesale Slaughter? Not Exactly

The impact of AmazonSupply.com on distributors is not black and white

This article originally was published on May 13, 2014, on mdm.com.

By Lindsay Konzak

AmazonSupply, the industrial supplies platform of Amazon.com, is already having an impact on select segments of the wholesale distribution industry. And certainly many distribution companies across sectors are watching AmazonSupply closely to see what it will do next.

That's smart. And MDM has never been one to downplay that. But the recent Forbes article's characterization of Amazon's foray into industrial supplies as a "wholesale slaughter" is overstated. The article says that Amazon has an $8 trillion part of the economy "running scared."

(A point of clarification: The $8 trillion figure used by Forbes appears to be rounded up from $7.2 trillion, which is also not an accurate reflection of the market Amazon is targeting. The size of the wholesale distribution industry when you exclude manufacturers' branches and sales offices is closer to $5.1 trillion in revenues in 2013.)

Calling AmazonSupply's launch a "stealthy rollout" – not exactly the case in distribution circles over the past two years – the article barely touches on the very important role that wholesaler-distributors play for their customers, not to mention the very different ways distributors in different sectors go to market.

But as TED Magazine Publisher Scott Costa writes, the Forbes article does give AmazonSupply more credibility in the market. While distributors have known about AmazonSupply since it officially launched in 2012, those outside this fly-under-the-radar industry probably didn't. It will be interesting to see if we will be able to get more information on the platform as a result. Amazon has historically been reserved about its strategy in the B-to-B realm.

In an MDM survey last year, just 1 percent of respondents – mostly distributors – said they had seen a significant impact from AmazonSupply, and 93 percent reported no impact. That will likely shift, and probably already has a year later, but there's a long way to go before there's a "wholesale slaughter" based on that snapshot of the industry.

As is the case for many things in this world, the case for Amazon's disruption of the wholesale distribution industry is not black and white.

AmazonSupply's latest website figures show 2.25 million products available, which is up significantly from 500,000 when it launched in April 2012. It has been aggressively seeking manufacturer partners, as well as distributors, to supply its customers. Its inventory is broad, but not particularly deep, however, and in some cases Amazon's access to a particular SKU is limited to just a handful – or even just one.

That said, AmazonSupply continues to recruit product managers for its business and has joined a number of industrial distribution associations. Amazon has a history of building out product reach and infrastructure at the expense of profitability. And that scale could have very real impacts down the road in certain sectors of distribution, starting with commodity items.

It is also offering products online that a lot of distributors in specialized sectors have always thought were not primed for sale via e-commerce. That's challenging the way distributors are thinking about their online strategies, which I would argue is a good thing. Distributors need to consider a multichannel approach.

Still, AmazonSupply lacks on-site service capabilities, such as inventory management – in high demand from some B-to-B customers right now – and a deeper understanding of the B-to-B market. Amazon has always focused on how people buy, not what they buy. In some categories that may be very powerful and disruptive; in others, customers may need a much higher level of expertise on product selection and service from their suppliers, which may include installation and ongoing maintenance to keep, for example, a production line from going down.

Here are a few thoughts on some of the less black-and-white impacts Amazon is having already on the wholesale distribution industry:

Amazon's approach to usability online and fast reliable shipping has become what's expected. And what's expected in consumer circles frequently bleeds into B-to-B markets. That is having a very real impact on what customers are demanding from distributors and has sped the implementation of e-commerce and other online initiatives.

While large national distributors such as Grainger, MSC and Fastenal are not claiming a big impact on their businesses from AmazonSupply, they have invested heavily in their

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MARKETS UPDATE SUPPLEMENT P. 4

News Digest
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weakness later in the year.

Small business optimism in April was up from March at 95.2, a post-recession high. The index is still 5 points below the average reading from 1973 to 2008. The economy continues to perform modestly as April's index indicated as it crossed the 95 marker for the first time since 2007.

Following two consecutive monthly gains, **wholesale sales in Canada** decreased 0.4 percent to C$50.5 billion (US$46.2 billion) in March. The motor vehicle and parts subsector recorded the largest decline in March. Excluding this subsector, sales edged up 0.1 percent to C$42.3 billion (US$38.7 billion).

Canadian manufacturing sales increased 0.4 percent in March to $50.9 billion, according to Statistics Canada. The increase mostly reflected higher sales in the food, machinery, and plastics and rubber products industries.

Seasonally adjusted **industrial production** fell by 0.3 percent in March, compared with February, in the euro area (EA18) and by 0.2 percent in the EU28, according to estimates from Eurostat, the statistical office of the European Union.

Compared with February 2014, March 2014 seasonally adjusted **production in the construction sector** fell by 0.6 percent in the euro area (EA18) and by 0.5 percent in the EU28, according to Eurostat.

Manufacturer News

Bel Fuse Inc., Jersey City, NJ, has agreed to acquire the network power connectivity solutions business of **Emerson Inc.** in a $98 million cash transaction.

Allied Motion Technologies Inc., Amherst, NY, reported sales for the first quarter of $60.4 million, an increase of 140 percent from a year ago, with foreign sales up 78 percent and sales in the U.S. doubling. Profit increased to $2.1 million.

Louisiana-Pacific Corp., Nashville, TN, and **Ainsworth Lumber Co. Ltd.**, Vancouver, British Columbia, announced they are terminating their previously announced agreement in which Louisiana-Pacific would acquire all of the outstanding common shares of Ainsworth.

Manufacturing Technology Orders
Continued from p. 1 of this section

42.2 percent when compared with last March. At $370.2 million, year-to-date 2014 was up 4.8 percent from the comparable figure for 2013.

South Central Region

Year-to-date 2014, manufacturing technology orders in the South Central Region through March totaled $179.1 million.

Amazon
Continued from p. 3 of this section

online platforms and are prioritizing initiatives that make it easier for customers to do business with them. They are also continuing to diversify their product and service reach to increase customer stickiness.

More distributors are taking a closer look at their customer base, segmenting to discover which customers are transactional, which are willing to pay for services, which could benefit from cross-selling and so on. Amazon's ongoing expansion and presence in the industry should spur distributors to continue prioritizing these initiatives to tie themselves closer to their customers. Still, distributors face challenges in utilizing data effectively.

Get more coverage of Amazon's impact on the industry in the MDM Archives at www.mdm.com.

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