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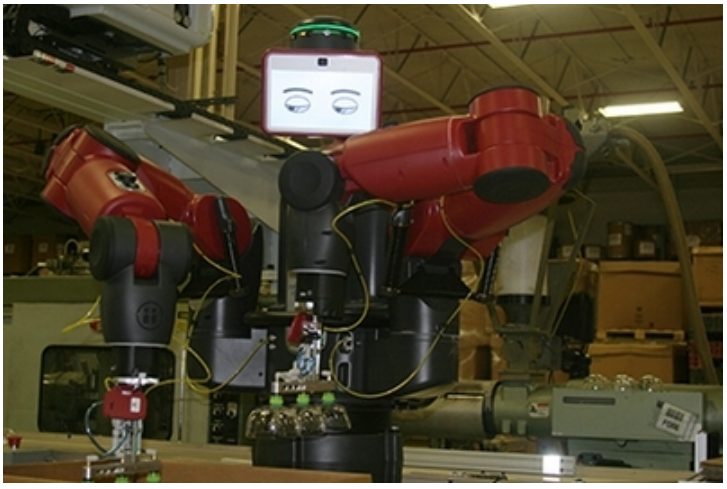
EYES ON EFFICIENCY Technology and automation, including the use of robots, slash costs, speed work flow and improve accuracy for manufacturers.

By Brian Pedersen



Baxter the robot packs suction cups at the Rodon Group in Hatfield.

Can automation save manufacturing?

In many cases, it already has.

Manufacturers, engineers, information technology pros and creative people of all stripes are starting to realize that by focusing their talents on using technology to increase the efficiency of the manufacturing process. They, in turn, are making U.S. manufacturing more profitable.

It may be expensive to acquire the technology and train employees on how to use it, but the end result appears to be worth the investment for manufacturers.

When manufacturing companies remain in the U.S., they make themselves more competitive.

“We keep making incremental investments in information and technology to stay globally competitive,” said Michael Araten, president and CEO of The Rodon Group and K'NEX Brands in Hatfield.

The Rodon Group is a vertical injection molder that creates small plastic parts for a variety of industries. With two plants in Hatfield, Rodon is a subsidiary of K'NEX Brands, which makes parts for educational construction toys for children. Over the years, The Rodon Group has made a significant investment in technology.

“Every press has some kind of robot,” Araten said. “We only have five people on each shift.”

However, the idea of machines replacing people, thereby reducing jobs, is not entirely accurate, Araten said.

“It's about becoming more competitive so they can keep those jobs here,” said Walt Hoffert, business development manager for Manufacturers Resource Center in Bethlehem, an organization that offers training and funding assistance to manufacturers.

“They are basically updating their skills,” he said.

Manufacturing companies may replace some people when new machines come aboard, but often, these employees are reassigned within the company, Hoffert said.

“The fact that they can do that keeps them competitive,” he said. “Most companies that want to survive these days have to update their equipment.”

For manufacturers, automation reduces costs, allows for faster work flow, is more accurate and offers more quality control, Hoffert said.

Automation opens the opportunity for delivering better service to clients, cutting costs and making processes appear seamless.

Air Products & Chemicals Inc., a global manufacturer of industrial gases and chemicals with headquarters in Trexlertown, delivers gases to hospitals and other major facilities, both locally – such as to Lehigh Valley Health Network's Cedar Crest Campus – and beyond.

The company produces the gases and provides storage tanks, but also supplies the product to the client using its own drivers and trucks, said Dave Burgess, Air Products technical lead for telemetry in North America.

Through the telemetry process, a level sensor is placed on the side of the tank to measure the level of gases in the tank that can be transmitted. A second device is connected to the communications equipment and serves as an indicator to determine when levels are too low and the gases need replenishment.

Air Products takes care of the entire process, and the customer does not have to renew its order.

The device, called TelAlert, is manufactured in the U.S., and Air Products has a close relationship with the supplier, Burgess said.

“We have never really adopted this technology and then reduced the workforce,” he said. “It allowed us to move tasks further down into the organization so it eliminates the lowest-value work and allows us to move up the higher-value work.”

At the Rodon Group, the two plants cover a total of more than 250,000 square feet and contain more than 100 injection-molding presses.

One of the company's newest robots is Baxter, a device that's the first of its kind in the nation, according to Araten.

“We've taught it to pack using suction cups to place objects directly in rows,” Araten said. “We are going to teach it to do simple assembly.”

At a cost of $30,000 per robot, the price is very low for this kind of technology for a manufacturing company, Araten said. For example, the robot adjacent to Baxter cost $100,000, he said.

Manufacturers are increasingly using robots to do work, but Araten said he is surprised by how fast the technology advances.

“I can't imagine three years ago what they'd be doing,” Araten said.

Aside from robots, The Rodon Group has technology that allows it to see, via flat-screen monitors, what the production capacity is from moment to moment so the company can more quickly manage its workflow. This ERP device can cost $100,000 to $2 million.

“However, the technology investment is worth it, in the sense that if you can make it here, you save on shipping costs, tariffs. …” Araten said. “We're seeing with both midsize and large companies, more of them are making things here [versus overseas].”

Though Araten said his company also finds it difficult to acquire skilled, qualified employees, the need is not as acute as one would find at other manufacturers.

“We don't need 100 people at once, we might need 20,” Araten said. “The issue definitely exists.”

As the technology continues to advance, the atmosphere of the production floor continues to evolve with it, creating a clean, well-lit working space.

“They are the middle class jobs that people thought went away,” Araten said. “We help train the future people that we and other manufacturers will need.”

The challenge for Air Products is to not deliver the product to the customer until it's needed, but also not to wait until it's too late and the customer runs out of product, Burgess said.

“If you have better data, you'll have better prediction,” Burgess said. “That has proven to be wildly successful. The core of the system is a prediction of when the customer is going to reach that 'just-in-time' inventory level.”

The system has been around in some form since 1990, but like most technology, it's constantly changing.

Air Products plans to upgrade the system, Burgess said. This involves changing hardware, software, operating systems and commercial networks.

“All those things make it very difficult to manage,” he said.

Poly Plastics Products, a blown-film extrusion company that makes flexible packaging, including plastic bags, is an example of another company that has invested millions in new equipment to reduce its dependence on labor. However, in this case, the investment not only gained higher production speeds, but added more employees to the payroll.

With two plants, one in Delano, Schuylkill County, and another in Marshville, N.C., the company went from a $30 million manufacturer with 200 employees to a $60 million company with 245 employees covering the two plants, said Stephen Redlich, president.

“Because we were more competitive, we were able to grow and we were able to hire more people,” Redlich said. “We've grown quite a bit over the last 13 years. The technology enabled us to grow.”

Extrusion lines in general are expensive; one that's high speed will cost about $1.2 million, he said. But with this new equipment, a machine – and not a person – automatically changes each roll. Poly Plastics now can produce about 500 feet of product per minute as opposed to 350 feet per minute before.

“As you can see, it's a major advancement,” Redlich said. “Obviously, the labor impact is diminished; it all stems from technology.”

The advent of 3-D printing through additive manufacturing, a process that allows manufacturers to create a 3-D model of a product, has allowed companies such as InterMetro Industries Corp. to build products faster through rapid prototypes.

“You can move from prototype A to prototype B to the eventual manufacturing of that part,” said Dave Reppert, vice president of product engineering for InterMetro, which has a corporate headquarters office in Wilkes-Barre.

InterMetro manufactures and supplies storage and transport products in the food services, commercial products and health care industries.

The 3-D process allows manufacturers to “very quickly without a lot of tooling, without a lot of documentation, to get to a concept or near functional model,” Reppert said.

The process opens the door for other parties to collaborate on the process. This model also can be shared with other manufacturing associations, tooling professionals and customers, he added.

Clearly, as manufacturing grows, so too does the value of investing in automation and technology.

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