

WHAT WILL WE THINK OF NEXT?

By David King

Robots in reality

Manufacturers are realizing improvements in productivity and quality with the use of robotics, a technology now prevalent in virtually every industry.

Most of us got our first introduction to robots through a science fiction film or TV show. Remember R2-D2 and C3PO from Star Wars, Rosie the Jetsons' maid and the cleverly named "Robot" from Lost in Space? Catering to our every whim, with all sorts of flashing lights and buttons, it is easy to see the appeal these contraptions hold on our imaginations.

Still, despite inspiring countless fantasies, the robots we see on screen have never quite managed to make the jump to reality. That won't be changing anytime soon, but during the past decade or so, people who work in manufacturing have become very familiar with robots. In factories across the world, including right here in the Hudson Valley, robots are becoming more and more common, making a significant impact on productivity and the workforce. In 2008, the total number of robots in the world was 8.6 million (roughly the size of the population of New Jersey), and that number has been growing. In 2013, according to the Robotics Industries Association (RIA), shipments of industrial robots increased over the previous year in every region of the world, including an increase of 27% in the Americas.

Evidence of the growing importance of robots can be found in businesses throughout the Hudson Valley. "Robotics are more prevalent in manufacturing now," says Marc Harris, who teaches a class on advanced robotics in manufacturing at Ulster BOCES.

Bruce Phipps, the president of MPI Incorporated, a leading manufacturer of automated wax-room equipment, observes that robots have put "repeatability and quality" into the investment casting process, providing a reduction in leftover scrap and a higher casting yield. "Robots

will repeat a process flawlessly, 24 hours a day, 7 days a week, whereas a human is not going to do that." Harris explains. The result is more efficient, cost effective and greener production.

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Robots are being used for manufacturing in virtually all industries, including electronics, metal fabrication, wood, plastics, automotive, pharmaceuticals and renewable energy. The new breed of easily programmed robots automates routine and repetitive tasks: they cut and shape fabricated parts, assemble machinery and even inspect manufactured parts. They can die cast, drill, fasten, forge, make glass, grind, heat treat, load/unload machines, machine parts, handle parts, measure, monitor radiation, run nuts, sort parts, clean parts, profile objects, perform quality control, rivet, sand blast, change tools and weld. About 40 percent of industrial robots are used for "pick and place" chores.

Still, for all their benefits, robots come at a cost. Phipps acknowledges that automation is "taking the human labor out" of the casting process but, he adds, new job opportunities are created as well. "You need someone to build them," he says. "People worry," Harris states, "that robotics is going to put people out of work, but what they do is change the level of skills that you need." Presumably these higher-skilled jobs will also come with higher wages. While predicting future trends is always fraught with risk, some studies, including one commissioned by the International Federation of Robotics from UK research firm Metra Martech, have projected that robotics will be responsible for the creation of up to 3.5 million new jobs worldwide by 2020.



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Robotics and Manufacturing
Technology Instructor,
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