



Industrial Technology and the Supply Chain: What is Around the Corner?

After years of spending on the components of industrial technology, professionals in the supply chain and manufacturing disciplines should begin to see the fruits of their investments, as new capabilities and efficiencies begin to surface.

The near future won't be so much about discovering anything new, as learning how to fully leverage what is already in place. Sensors, for example, are creating transparency as never before.

Sensors Make Sense

Thanks to a dramatic reduction in cost, sensors that were once cost prohibited to use can now be purchased economically, and organizations are able to track products and equipment in new and more useful ways.

43 percent of companies are using now sensor technology to create an "always-on" logistical environment that can automatically identify, locate, and profile supply chain objects.

Deloitte and MHI Survey

Affordable wireless sensors can not only track location, but also monitor environmental conditions such as

temperature, shock, vibration, even G-forces. This information has the potential to significantly reduce shrinkage and improve supply chain performance.

Enter: IoT and Robots

As widely expected, the Internet of Things (IoT) will also begin to make its mark. As networks expand and integrate, organizations will gain insights that can be used to improve service and reduce cost. The combination of technologies will enable manufacturers to better communicate with their supply chain partners; JIT inventory, for example, will be better understood than ever before, with suppliers knowing in real-time what's needed on customers' factory floors.

Other benefits from IoT will include reductions in idle time, better factory equipment maintenance, improved inventory control, and more efficient shipping and delivery. Full realization of all these benefits, however, will depend on trained specialists who can make use of all the data that's collected.

Sensors and IoT are not the only technologies that are maturing. Robots, particularly AMRs (autonomous mobile robots), are joining AGVs (automated guided vehicles) to change warehouses and factories. Unlike AGVs, AMRs are not constrained by fixed paths

on facility floors. Sensors and cameras allow for independent movement; moreover, robotics companies are expanding robot capabilities from pick, pack, and sort tasks to include transport.

Drones, Autonomous Trucks, and AI

Beyond the production floor, drones and autonomous trucks will further automate the supply chain. Although still in the proof-of-concept stage, autonomous vehicles will become an increasingly important part of the industry thanks to improvements in navigation technology and haptic (pressure-sensitive) sensor design, not to mention evolving government regulations.

Artificial intelligence (AI), a fourth industrial technology, will soon profoundly transform the industrial workplace. As devices and equipment become smarter and smarter, decision-making will occur independently of human interaction. Through machine learning, robots and machinery will handle multiple processes instead of a single task. Managers will be able to determine what needs to be done, leaving the “how” to the technology.

In addition to deployment in warehouses and fulfillment centers, AI will have major applications throughout the supply chain. Predictive analytics—the ability to predict problems and outcomes in advance—will help organizations significantly improve operational performance.

What to Expect in the Future

As the world eases into the future, many factors will support the continued investment in industrial technology including corporate cash reserves, solid

consumer demand, and changing tax laws that allow for immediate write-offs of big-ticket purchases. A big caveat for manufacturers and their supply chain organizations, however, is to have a strong business case for any technology investment. Without accountability, supporting expertise, and a plan for effective change, the value of technology can quickly diminish to nearly zero.

On the whole, however, the future holds real potential for technology ROI. The maturation of systems, implementation expertise, and newly enacted tax incentives, all bode well for significant jumps in efficiency and value. With the right strategies and strong follow-through in place, organizations should find in the near future that technology takes its rightful place as the catalyst for a new era in supply chain and manufacturing prosperity.

