5 Ways Manufacturers Can Take Advantage Of The Industrial Internet

Cindy Waxer

Over the last few months, the manufacturing technology industry has seen the popularization of a new term: the Industrial Internet. It's a term coined by General Electric (GE) that describes the network that connects sophisticated machines embedded with sensors and computer software so manufacturers can gain real-time insights into everything from materials planning to pending maintenance issues. According to a recent GE report [1], Industrial Internet technologies could potentially add $15 trillion to the global GDP through gains in manufacturing productivity by 2030.

Whether the Industrial Internet can deliver these gains is up for debate. However, manufacturers can certainly stand to benefit from connecting their increasingly automated shop floors to intelligent software systems [2] that can boost productivity, reduce waste and enable preventative maintenance.

While this term is gaining traction within the manufacturing technology industry, few have detailed how, exactly, manufacturers can put this technology to use. In this article, we'll look at five specific ways that manufacturers can take advantage of data analytics and related technologies.

1. Improve efficiency.

One of the first ways that the Industrial Internet can help manufacturers is by enabling more accurate and detailed monitoring of machine efficiency levels. Manufacturers can equip their machines with sensors and then connect these sensors to internal Ethernet networks to relay information relevant to productivity such as energy consumption, average plant temperature ranges and machine output levels.

For example, GE recently equipped machines in one of their advanced battery manufacturing facilities with 10,000 sensors [3] and began relaying production information to their internal network. To give workers insights into the production process, employees are able to access real-time data over the network via an iPad which will allow them to push their machines to their technical limits.

2. Reduce waste.

These software systems can also help build an energy monitoring system to optimize power consumption within the manufacturing facility. These systems can track energy usage in real-time and then create alerts for production workers to tell them when to reduce machine production levels to prevent overuse. Of course, this type of monitoring can be used in other aspects of production to do things like

predict the most efficient inventory levels to keep on hand in order to meet current (and near-term) demand.

3. Improve machine productivity.

Machine output can be carefully tracked and measured by data analytics technologies to prevent machine downtime and increase productivity. German auto manufacturer Audi recently installed a system to track the production levels of all of their machines. The system can immediately flag machine downtime and alert workers of the issue as soon as it happens to prevent losses in productivity. Since implementing the system, Audi claims that the productivity of their machines has increased by 20 percent.

4. Identify and predict maintenance issues before they happen.

In addition to getting the most out of their machines, manufacturers can also use the Industrial Internet to predict when their machines will need preventive maintenance, allowing them to get more usage out of their equipment. By tracking and modeling a machine's usage patterns, software can alert workers when a particular part (e.g. a belt) is about to give out.

This can be a big boon to manufacturers. As Jim Pinto, author of "How to Win in the Automation Business [4]" points out, ""Maintenance up until now has been after the fact. However, Industrial Internet maintenance is really about predictive maintenance so that the Internet automatically tells you when a machine is about to fail." In a report by GE, they project that reducing unscheduled maintenance [5] by one percent could result in savings of $30 billion to the aviation industry over the next 15 years.

5. Cut production costs.

All this information in aggregate can help cut downtime (and lost productivity) to ensure manufacturers spend their time producing rather than tending to low-value tasks. Whether it is identifying a machine that is about to fail, or reducing wasted inventory levels these systems can help cut unnecessary production costs.

As these technologies continue to evolve and plant floor automation becomes increasingly common, these types of technologies will likely continue to grow in importance. If you're interested in reading some real-world examples of manufacturers putting these technologies to use, check out the original article at 5 Ways Manufacturers Can Take Advantage of the Industrial Internet [6].

Links:

[1] http://www.ge.com/docs/chapters/Industrial_Internet.pdf
[2] http://www.softwareadvice.com/manufacturing/
[3] http://www.technologyreview.com/news/509331/an-internet-for-manufacturing/
[4] http://www.amazon.com/Pintos-Points-How-Automation-Business/dp/1556179537
[5] http://files.gereports.com/wp-content/uploads/2012/11/ge-industrial-internet-vision-paper.pdf
[6] http://blog.softwareadvice.com/articles/manufacturing/5-ways-manufacturers-can-use-industrial-internet-0313/