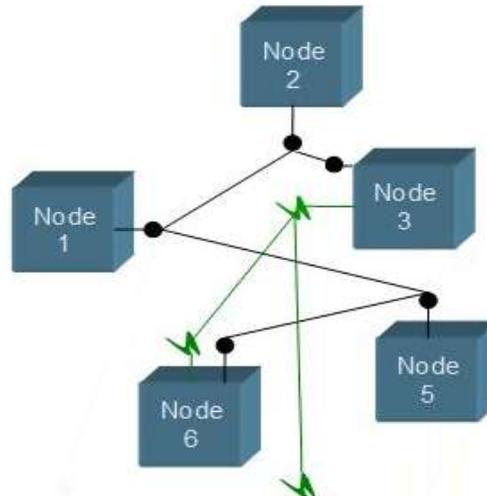# LEVERAGING THE INDUSTRIAL INTERNET FOR OPERATIONAL EXCELLENCE

Over the last few months, the manufacturing technology industry has seen the popularization of a new term: the Industrial Internet. The term 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. Some estimate this technology 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 that can boost productivity, reduce waste and enable preventative maintenance.

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, a large industrial machinery firm recently equipped machines in one of their advanced battery manufacturing facilities with 10,000 sensors and began relaying production information to their internal network. To give workers insight into the production process, employees are now able to access real-time data over the network via a tablet computer, which allows 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 a 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" 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." By some projections, reducing unscheduled maintenance 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.

The Internet is obviously not going away. As new ways to harness the value of seamless connectivity to plant, processes and equipment are identified, the "early adopter" manufacturers that embrace this technology first will reap the biggest advantages. As these integration strategies continue to evolve and become increasingly common, this strategy will likely continue to grow in importance and become a "must have" for manufacturers.

Source: http://www.apriso.com/blog/2013/05/leveraging-the-industrial-internet-for-operational-excellence/