In My Opinion
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CIO Insights
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Infor: Optimal Plant Efficiency

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The Industrial Internet at Work

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Heavy industry today faces relentless pressure to manage costs, shorten development times, and increase productivity—while also meeting customer demands for build-to-order manufacturing and quality compliance. However, most manufacturers find it challenging to extract new value from the plant floor. In fact, there is a drop in overall industrial productivity in recent years, from four percent annually in 1990-2010 to one percent since. This statistic results mainly from a reduced asset productivity.

So, what’s the problem? Fragmented infrastructure and siloed IT systems lead to poor performance and inefficiencies throughout the operation; manual, paper-based systems result in a lack of timely, in-context information and prevent real-time responses to issues, customers and opportunities; and tearing out current equipment or systems may not seem worth the near-term risk to productivity.

It’s clear that manufacturing today needs engagement and leadership from innovative organizations to establish new ways to increase productivity. Years ago, companies often outsourced manufacturing both to reach developing markets as well as to leverage cheaper manpower instead of spending money on new manufacturing technology. But with manufacturing out of direct line of sight and processes assumed to be well understood, organizations took manufacturing practices for granted. New talent wasn’t attracted to the space, and productivity declined.

Today, many factories have installed sensors that generate tons of data, but pure connectivity does not create value. Increasing productivity also requires digital models of physical assets, industrial analytics, and the capability to modify machines to achieve critical outcomes.

Four years ago, we started thinking that if connected machines and advanced analytics could make industry just 1 percent more efficient, the sheer scale of industrial operations would translate into economic gains valued in hundreds of billions of dollars. Numerous improvements at scale—even outcomes like 1 percent reduced downtime on critical equipment—can drive big changes in performance and operating margin.

We have to stop thinking about making things just a little bit better. Today we can latch onto a vision that is a moonshot and then accomplish it one piece at a time.

Many manufacturers need to drive inventory costs down
by 15 percent or improve quality by 10 percent or improve labor efficiency by 30 percent. These are real-life results of forward-looking manufacturers who have leveraged the power of the Industrial Internet. Outpacing the competition in heavy industry today requires you to offer the highest value at the best price. The Industrial Internet is the vehicle to get there.

In a nutshell, the Industrial Internet is profoundly transforming global industry and infrastructure by connecting machines, industrial Big Data analytics, and people. It means, however, that a manufacturing company has to be a software company to thrive. What does this transformation look like for a manufacturer?

First, you have to be connected. Connectivity is the foundation that gives you a unified, real-time view into manufacturing operations anytime, anywhere. You take the pulse of things, so insights can surface. You need this visibility to initiate immediate, data-driven actions and understand performance at every level. But let me clear up a misconception: This does not mean putting sensors on every piece of machinery in your factory. You start by being selective, by connecting only those machines critical to operations now. And you cannot connect machines only—you need manpower and material data as well for true insight.

Once you have the data, you can analyze it to pre-empt problems via predictive maintenance. Here’s an example: At GE’s Grove City Transportation plant, we’ve seen a 10-20 percent reduction in unplanned downtime. We equipped machines with sensors that relay their operating conditions. By listening to the machines, we’re able to recognize when they’re showing symptoms of failure before that failure happens. We can fix the machines without any disruption to the operation. This is what we mean by no unplanned downtime. And plant operators, supervisors and managers also get the information they need to know which action they take will have the most impact on your organization’s objectives.

Add the human factor applied through data science, and now you can create new solutions born from analytics. You can improve maintenance operations and asset utilization for increased production and lower risk. Let me give you another example from Grove City, this time from our Engine Remanufacturing facility, where we have deployed GE’s Brilliant Manufacturing solutions. We used to run all parts through the same loop for rebuild. Did every part require the identical work scope? No. By doing a little math, we can determine which ones need a complete remanufacture and which ones are eligible for the fast track, also known as the light work scope. By automating the scope for repeatability and quality assurance, we save tens of thousands of dollars per locomotive rebuild.

The Industrial Internet goes far beyond incremental change to solve many of the challenges facing manufacturers. Device connectivity systems and equipment not only inside factories, but across the supply chain. The digital thread is critical for heavy industry and complex discrete manufacturing companies, because extended supply chains span the globe, with long lead times and expensive transportation and material handling costs.

Even more compelling is the fact that Industrial Internet solutions are repeatable, predictable, scalable and secure. Once you get a segment of a manufacturing line working exactly as you want, you can reproduce it elsewhere with plug-and-play capability. Eventually you’ll be able to knit together machines into lines into cells into plants into networks.

And that’s the moonshot—to know a network works every time you plug it in, so you can expand and shrink capacity effortlessly. It’s the ultimate in manufacturing flexibility.