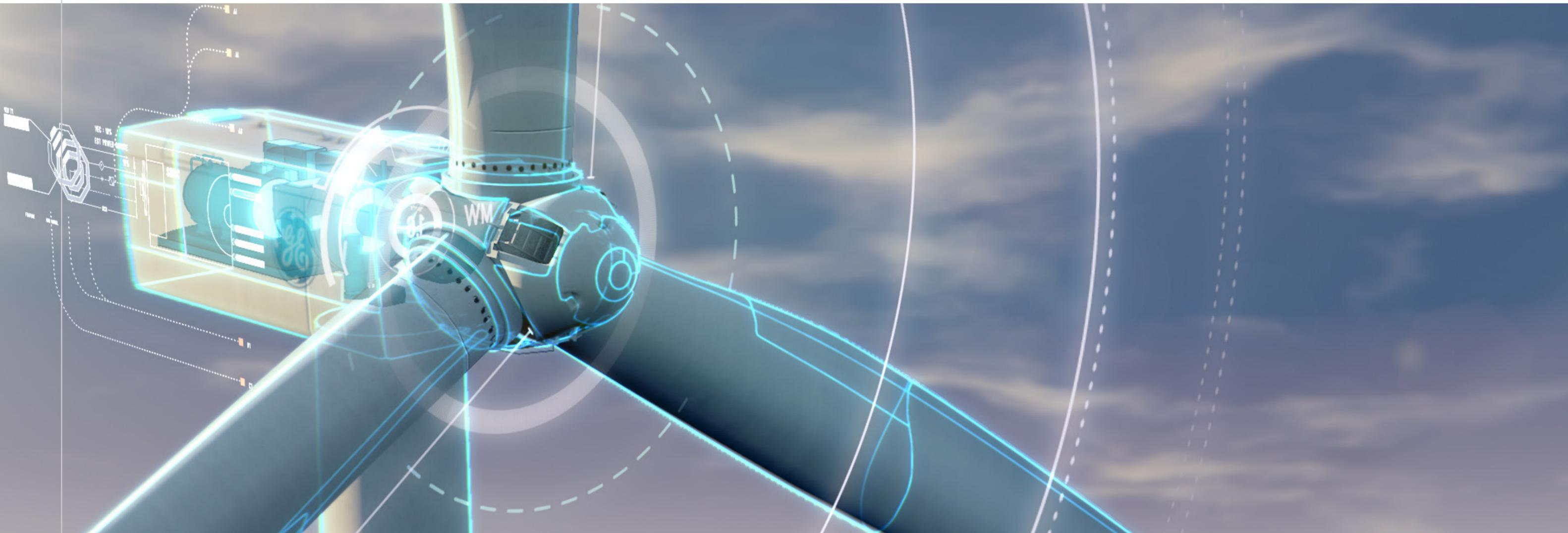




# Promises, Promises

The Pursuit of Business Value Via the Industrial Internet



The Industrial Internet is set to transform global industry and infrastructure as it connects machines, assets, and people. Its promise: to profoundly improve efficiency, productivity, and safety. Today, even a 1% efficiency gain from expanded interconnectivity could equate to annual savings of more than \$150 billion for industries like energy, transportation, and healthcare. By 2020, an estimated [30 billion machines](#) will come online. And by 2030, through accelerated productivity growth, the Industrial Internet could prove to boost global GDP by as much as \$15 trillion.

As the race toward the future continues, more traditional industrial organizations will likely face a competitive landscape that requires embracing the Industrial Internet to sustain positive business outcomes. In this sense, competitive advantage will likely be driven through advanced technological innovation. Costs will be cut. Profits will rise. But with these potential advantages and new opportunities, increased interconnectivity will also bring some level of inherent risk.

Then again, what in life—or business—is risk-free? No risk, no reward. What's important is that companies not only embrace the prospective benefits, but that they understand that time, dedication, and knowledge are necessary to prepare for the risks and plan for a secure path forward.

## Digital twin, activate

To illustrate the many cyber security challenges facing companies embarking on a journey towards further interconnectivity, let's take a closer look at some of the innovative advantages of the Industrial Internet.

In the past, manufacturers housed data on individual, siloed machines, such as computer numeric control (CNC) and surface mount technology (SMT) machines. In circumstances where they could pull data off a machine's sensors, they could really only apply it back to that particular machine or process. Today, cloud-enabled environments can connect and extract data from multiple machines, analyze it collectively, use it to make process flow and system improvements, and feed it back to product development teams to create higher-quality products.



One new and ingenious capability that the Industrial Internet can provide is something called a digital twin. Imagine, for instance, offering a power plant operator an identical, virtual power plant that runs in the cloud—a digital twin. This digital twin offers real-time simulation, modeling the present state of every plant asset. Operators can make changes to it and perform maintenance as needed to keep things running smoothly.

They can also simulate different conditions like increased demand or fluctuating renewable energy supplies, and learn how the real, physical plant would respond. The benefits? For a pre-existing plant, digital twin technology could save up to \$50 million over the remaining life of the plant by lowering fuel costs, emissions, unplanned downtime, and increasing performance. For a new plant, that figure could grow to \$230 million.<sup>1</sup>

This type of data modeling is not limited to power plants. Digital twins can extend to jet engines, windmill turbines, locomotives, and any number of other physical assets that could all be fine-tuned to gain maximum operational value before they are ever implemented in the field. Eventually, and most extraordinarily, this modeling will extend to healthcare, where the ultimate digital twin could collect data to make medical diagnoses.

1. GE's Industrial Internet of Things Journey, by ARC Advisory Group, February 2016

## As with all good things . . .

The promise of positive outcomes must also weigh the risk of cyber activity. As we've seen in the host of IT incidents over the years, the risk to operational technology that drives this kind of innovation cannot be overlooked.

In order to protect your increasingly connected assets, proper cyber security is a must. Think of it like insurance. Most people think they really don't need it, or at least they are not fond of paying for it, until something bad happens—at which point it's too late. The reality is, if your company has connected to the Internet, statistically speaking, there is a high likelihood you've already been breached and it's only a matter of time before the culprits run off with your stuff.

The risks are real, regardless of your industry. The oil and gas industry is seeing intensified cyber attacks. Hospitals have been paralyzed by ransomware attacks where patient data has been stolen and held hostage. While security

products can help, it's equally as important to make sure that the human element has been addressed.

For example, products can't guarantee that security policies are instituted, that processes are followed, that personnel are changing their passwords every 30 days. A strong security program includes making sure that your people understand both the value and the risks of interconnectivity.

Breaches and network compromises are more common than you think. They don't require strategy sessions in far-off countries. They can happen as innocuously as connecting an infected USB stick into a human machine interface (HMI) console that opens up a pathway for hackers to invade and disrupt systems. When something this simple can contaminate an entire industrial network and put a business at risk, protecting your business with an investment in education, training, and process establishment seems more than worthwhile—especially considering all the good things that digital industrial transformation promises to deliver.





## About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive, and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure, and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology, and scale, GE delivers better outcomes for customers by speaking the language of industry.

## Contact Information

Americas: 1-800-322-3616 or 1-434-978-5100

Global regional phone numbers are available on our web site.

[www.ge.com/digital](http://www.ge.com/digital)

