SIEMENS

Turning Big Data into Smart Data

In today's interconnected world, it's not enough to capture information. You need to understand it

Big Data is already here. One zettabyte—that's a 1 with 21 zeros at the end—is 50 percent more than all the grains of sand on all of the beaches on Earth. By the year 2020, the volume of digital data stored is expected to reach 40 zettabytes, a 50-fold increase in the span of a decade that means the information collected for each man, woman and child will be the equivalent of the text contained in three million books.

Collecting that data is one thing, but understanding it—and using the resulting knowledge to optimize existing systems—is another. "What you really need are ways to structure big data more efficiently," explains Eric Spiegel, President and CEO of Siemens USA. "What are the processes you can put in place to capture that data, analyze it and produce usable reports so that businesses can understand what they need to do differently? That's the transition."

Welcome to the world of Smart Data. Take a wind turbine, for instance. In the era of smart data, Siemens sensors not only measure the mechanical vibrations inside, but instantly compare them against a database containing the measurement values of 6,000 other turbines. Armed with that information, a service team can take immediate action once an anomaly is spotted, and carry out anticipatory maintenance before the system breaks down. This predictive capability is now being applied to smarter service and maintenance for trains, the electrical grid and gas turbine engines.

In the case of a gas or wind turbine, or even a drive unit in the coolant pump at a power station, leveraging smart data could keep the lights on for thousands of residents. For trains, this could mean enhanced reliability for commuters. And at research hospitals that use Siemens CT scanners, optimizing machines and the departments that use them can save lives.

Turning massive, unstructured data volumes into smart data takes a unique blend of industry, device and analytics expertise. On the industry and device fronts, 168-year-old Siemens continues to grow its in-depth knowledge of the physical world by actually building equipment—no surprise from the company that literally invented the electric locomotive.

"It's not enough to be an IT company; you need to be a technology company that has a deep domain knowledge," explains Spiegel, who notes that the marriage of IT and industrial engineering means that nearly every device Siemens makes, from turbines to transmission lines, now has sensors and software inside. "Because we make those devices, we know how they should operate. That way, when you get this big data, you understand how it can be used to make things run more effectively."

Enter analytics, where Siemens boasts more than 280,000 pieces of equipment worldwide that are each connected to maintenance centers located on several continents. Together, these centers process and analyze more than 10 terabytes of data every month—an amount expected to increase tenfold by 2020—from industrial automation, power generation and countless other systems to extract value from it.

Turning multi-sourced big data into smart data that is action-oriented and predictive promises to create a significant competitive advantage for those forward-thinking businesses ready to adopt it. From the startup that is working with limited resources to the large corporation aiming to grow its market share, more and more companies are turning to smart data to identify what makes current operations suboptimal, and to develop solutions that lead to more efficient use of time and resources. In fact, some plants have already improved capacity 30 percent by utilizing smart data.

"Customers don't just want to buy a piece of equipment and a service contract," Spiegel adds. "What they really want to know is how we are going to use these technologies to help them optimize their business." With 60 global business units dedicated to doing just that, it's no wonder that Siemens is perfectly positioned to thrive in the digital world—no matter how many zettabytes it holds. ●