Creating trust through networking

Everyone’s a winner

Downtime is every manufacturer’s nightmare – particularly when delivery schedules are tight. To minimize it, we’ve joined forces with customers to develop ePS Network Services – an IT-supported service offering that maximizes transparency in manufacturing processes and creates added value. With ePS, everyone’s a winner – as the network linking a German manufacturer of highly specialized machine tools with its Dutch partners illustrates. In the following report, Johannes Zuckschwerdt and Ton de Bruine talk about their experience with ePS.
No problems overnight
Checking his machines first thing in the morning, Johannes Zuckschwerdt finds everything running smoothly: no error reports in the last few hours. Zuckschwerdt is responsible for developing new services at the medium-sized company Schwäbische Werkzeugmaschinen (SW). Headquartered in southwestern Germany, SW specializes in producing top-quality multi-spindle machining centers and manufacturing systems – primarily for customers in the automobile, hydraulics and aviation industries. Specially designed for series production, these machining centers and manufacturing systems enable customers to process, for example, the cast parts from which components like the high-precision hydraulic valve blocks installed in virtually all of today’s cars worldwide are manufactured. Around-the-clock operation with minimal downtime is vital for optimal large-scale production.

Availability and world-class service are the key factors in SW’s success. Wherever the machines are – in Mexico, Brazil or China – Zuckschwerdt and his colleagues can monitor their operation precisely – thanks to Siemens’ remote ePS Network Services, which permanently link SW’s machines to their developers in Germany via an encrypted Internet connection. Experts can now work proactively. “We can see early on when a part needs changing,” says Peter Siegel, initiator of online services at SW. The company’s specialists access the machines’ centrally-stored status information, initiate analyses and isolate problems online to forestall expensive failures. And this is just one side of the coin: SW also uses the collected data to help customers run their machines more efficiently.

Ten years ago, Siegel was searching for ways to expand SW’s services, improve customer support and intensify customer loyalty worldwide. Then, in 2002, he met Jochen Heinz from Siemens. Heinz had the solution Siegel was looking for. “Siemens’ ePS Network Services were market-ready at that point,” Heinz explains. “We’ve continued developing them with partners like SW ever since.”

Lifecycle management
Collecting and analyzing machine data enables users to enhance machine productivity.

AROUND-THE-CLOCK MONITORING
– lays the basis for reliable production processes
– detects faults early on and prevents machine downtime
– systematically manages improvements

DIAGNOSTIC SERVICES
– optimize capacity utilization
– accelerate fault processing
– enable in-depth error diagnoses

SCHEDULED MAINTENANCE
– optimizes maintenance processes
– schedules preventive and status-oriented maintenance procedures
– reduces machine failures
– increases machine uptime
– improves capacity utilization
– prevents costly unplanned repairs

Headquartered in southwestern Germany, Schwäbische Werkzeugmaschinen has around 300 employees and produces highly specialized machine tools for customers in Europe and around the world.
Quickly spotting a chance to move to the forefront of IT-supported services, Peter Siegel put his trust in Siemens. “Close collaboration was an obvious choice since Siemens had already been a reliable partner for years,” he recalls. “We’ve been outfitting most of our machine tools with Siemens controls for more than 20 years. For example, we’re currently using SIMODRIVE and SINAMICS converters and SINUMERIK control systems.”

**Competitive advantages thanks to Siemens technology**

Siemens’ online services provide SW with a key competitive edge – beyond maintenance and servicing. “Using a machine’s diagnostic data, we can show customers how to increase their output by improving their processes, for example,” explains Siegel. The payoff is closer customer relationships, increased revenue and valuable ideas for new machine development. And Siemens profits too: “ePS enables us to support our customers and our customers’ customers,” says Jochen Heinz. The result: new business opportunities for everyone concerned.

**LEFT** — SW equips most of its machine tools with our SINUMERIK control systems, which operate perfectly with ePS Network Services.

**BELOW** — Jochen Heinz from Siemens (left) and Peter Siegel from SW have been refining ePS Network Services for many years.
**ABOVE** – ePS Network Services are mobile: whether at the company or on the road, Johannes Zuckschwerdt can access SW machine status data worldwide via tablet computer.

Johannes Zuckschwerdt, head of new services development at Schwäbische Werkzeugmaschinen

“As a highly specialized medium-sized company, we can’t maintain a local presence worldwide. But with Siemens’ outstanding online services, we can still keep very close to our customers.”
Swäbische Werkzeugmaschinen (SW) supplies customers in 29 countries with innovative machining centers, which are networked with the company’s headquarters in southwestern Germany via Siemens’ IT-supported services.

Siemens’ IT-supported services
Its partnership with Siemens is enabling Swäbische Werkzeugmaschinen to offer services worldwide. “As a highly specialized medium-sized company with around 300 employees, we obviously can’t provide local customer support in every country,” explains Johannes Zuckschwerdt. “But we don’t need to. Thanks to ePS Network Services, we can support customers in China, the U.S. and everywhere else directly from our headquarters in Germany.”

Online diagnostic analysis saves time and money – especially in the very rare cases in which machines break down. In the past when this happened, a specialist would have to be dispatched to the customer to conduct detailed on-site diagnostics. Today, things are easier – instead of travelling halfway around the world, SW experts can analyze failures online. Using log files, causes can be pinpointed and customers provided with precise instructions for remedying defects. “This is how we boost reliability for our customers and help them maintain production around the clock,” notes Zuckschwerdt.

The idea is actually very simple. But putting it into practice required an intensive exchange of knowledge and a large measure of trust. “Engaging in joint development with Siemens, we’ve naturally had to share sensitive data about products and services,” says Zuckschwerdt. “However, this hasn’t been a problem for us. We’ve been working with Siemens for a long time. So we’ve built a very close relationship based on trust. That’s the only way to create innovative products that benefit both partners.”
“We have great trust in Schwäbische Werkzeugmaschinen’s online services and the Siemens technology that backs them up. They’re making our processes more reliable and our cost calculations more accurate.”

Brinks specializes in the machining of metals: high-precision and high-volume drilling, milling and thread cutting. For these operations alone, the company uses 17 machines from Schwäbische Werkzeugmaschinen.

Operating around the clock, SW’s machines in Vriezenveen manufacture tens of thousands of identical components in series production – components that Brinks’ customers want at the right time and in the right quantities for their assembly lines. Top quality is essential. “If one of our machines shuts down unexpectedly, we immediately have problems meeting our delivery deadlines,” says company owner Ton de Bruine. “Because our production lines run 24 hours a day, there’s little extra machine capacity to compensate for any breakdowns that may occur.”
So there’s no room for error. That’s why Brinks has been using SW’s online services for several years now. “It’s not just that SW provides us with immediate support from Germany in the event of an acute problem,” explains de Bruine. “The company also helps us improve the scheduling of servicing and maintenance for our machines across their entire lifecycles.” Thanks to the detailed information that these services provide about the condition of spindles, axles and other key machine components, Brinks employees always know exactly when parts need replacing.

Planned downtime instead of unexpected failures – that means no missed delivery deadlines. “Working closely with Johannes Zuckschwerdt over the last few years, we’ve learned to value the many possibilities that ePS offers,” says Ton de Bruine. And even though he’s not a computer freak himself and doesn’t even have a PC on his desk, de Bruine doesn’t intend to dispense with the tried and tested services in the future. “We’re equipping all our machines with this system.” The issue of data security also played a key role in his decision. “I’m 100% sure that our data is in good hands with Siemens and Schwäbische Werkzeugmaschinen.”
Secure and reliable processes create trust

Other SW customers are also on board. “Around 90% of our customers now rely on ePS Network Services,” reports Peter Siegel, who’s now reaping the benefits of his early commitment to the innovative services. “With ePS, we can keep a close eye on machine status data and provide optimal customer support. The online services have proven to be a decisive factor in generating long-term customer loyalty over the past few years, helping us build up a solid customer base.” So it’s no wonder that SW intends to further enhance its competitiveness in the areas of customer support, consulting and, above all, proactive services that help manufacturers keep their production lines running smoothly.

Jochen Heinz, Siegel’s Siemens partner for many years, sees huge potential in online equipment monitoring. “Using the system with machine tools has taught us which algorithms, architectures and business models we need,” he says, summing up his experience. “Precise, online equipment monitoring is important for many Siemens customers. In the fields of industry, infrastructure, energy and healthcare, there are already a large number of similar applications that are making machines and systems more productive and more reliable.”

More information on Siemens’ online services can be found at www.siemens.com/ar/networking.

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Costs are a decisive factor across the entire lifecycle. Machine downtime and unplanned maintenance are much-feared cost drivers in manufacturing. Consequently, more and more industrial companies are basing their investment decisions on total operating costs. And it’s not just procurement and consumption costs that they’re taking into account. They’re also considering machine availability and productivity. Companies with technologically advanced and optimally organized maintenance and production processes have a clear competitive edge. That’s why Siemens provides its customers with comprehensive industry services like ePS Network Services.

The data provided by ePS Network Services enable companies to calculate machine operating costs for complete lifecycles.

Online platform with maximum data security. Offering customers an advanced status monitoring system, our ePS Network Services provide manufacturers with the information they need to improve service and maintenance processes worldwide and increase machine productivity and uptime. Service processes are managed via an underlying online platform. A multilevel access protection system and high-availability servers maximize data security and availability. Siemens’ ePS Network Services comprise:

> ePS Diagnostic Services, which enable manufacturers to monitor the status of their equipment worldwide. Machines automatically report their diagnostic and measurement data to the ePS server at regular intervals. Supported by appropriate algorithms and automatic features, manufacturers can identify and analyze the causes of faults more quickly.

> ePS Condition Monitoring, which closely monitors machine status and wear. Potential faults can be detected at an early stage so that service personal have time to take appropriate action. Key parameters can be monitored online. When threshold values are exceeded, specialists are automatically notified by e-mail or text message. Complete machine overviews facilitate preventive and status-oriented maintenance. Maintenance schedules can be optimized to increase system availability and productivity.

Everyone’s a winner. Our innovative IT-supported services benefit machine operators as well as machine manufacturers. By making machine utilization more effective, enhancing competitiveness and enabling companies to tap lucrative new business fields, these services create value all along the value chain – for our customers and for our Company.