software AG

Smart manufacturing where it belongs: Cumulocity IoT brings intelligence to the factory floor

Customer success story

SMC®

"We have a very open partnership with Software AG. We have infinite knowledge in the area of machinery and data detection and they have exceptional knowledge of data capture and analytics through IoT. Ours is the perfect union."

– **Oliver Prang** | Expert Digital Business Development, SMC Deutschland

Customer profile

The SMC Corporation began in Japan in 1959, and very quickly developed itself as a global leader in the manufacturing of pneumatic equipment. In 1978 SMC Deutschland, a wholly owned subsidary, was set up in Germany, the future birthplace of "Industrie 4.0." The SMC corporation has 19,746 employees and is present in more than 83 countries and regions. In Germany, a team of 750 manufacturing industry experts work to bring innovation to the factory floor.

New challenges

- Bridging the gap between data detection and data capture
- Growing customer demand for innovative "ideas"
- Need for an international yet regional IoT expert
- Genuine desire to see Industry 4.0 in factories
- Pressure to deploy an IoT-driven solution fast

Software AG solution

- Cumulocity IoT

Key benefits

- Solution rolled out in less than 1 week
- "Start small, scale fast" with just 5-10 sensors
- New solution "Smart field analytics" in under 4 months
- New use case in predictive maintenance
- New use case in leakage detection
- New use case in energy efficiency monitoring

Where knowledge converges

SMC has a 50-year heritage in pneumatics. The corporation is a leading expert—offering its customers a product palette that includes 12,000 basic models with over 700,000 variations. In Germany, if that legacy has taught the company anything, it's that staying ahead of technology, yet remaining humble where customers are concerned, is critical.

"We pride ourselves on passing innovation on to our customers. We noticed our end users were wanting to get more information out of their machines but didn't know where to start. There was also concern at the top that big investments were no guarantee of ROI," said Oliver Prang, Expert Digital Business Development for SMC. "And given that our customers are so busy—they naturally look to us to provide ideas."

Which is just what SMC set out to do. The company decided to extend its product lines with smart networking and decentralized intelligence through the Internet of Things (IoT). It was a logical next step as most SMC components were fitted with sensors anyway. But there was a problem: Sensors could detect the data but they had no way of enabling customers to see, decide and act on it.

The ability to see, decide and act

SMC reached out to Software AG. At Hannover Messe 2019 the company had an inspiring first meeting with Software AG's Cumulocity IoT team. Software AG had all the IoT knowledge but not the level of expertise that these machine builders did. They were the perfect match: Cumulocity IoT could offer SMC numerous advantages. It could integrate with any "thing" and the IoT data could further integrate with any cloud service, core system or application. There would be no coding required. And it could be up and running on the customer side in under 20 minutes. Rated in Gartner's Magic Quadrant as a "Visionary" Cumulocity IoT—it was simple and powerful.

A few points really caught SMC's eye: First, Cumulocity IoT was available on the edge, cloud and on-premises. Many SMC customers were not using cloud solutions—so they needed options. Second, it would be possible to start a customer off with just five sensors. "Start small, scale fast—it's the approach we knew our customers would want to take," Prang said. SMC requested a PoC—which saw the solution deployed and creating value in less than one week. SMC ruled out other vendors immediately.

Introducing: "Smart field analytics"

At the Smart Production Solutions (SPS) in Nuremburg, Software AG and SMC exhibited together. In less than four months they had developed a strong solution and a first use case. Under the offering "Smart field analytics" SMC would provide a powerful, simple but easily scalable solution to customers. With simple dashboards, factory managers would be able to deploy predictive maintenance across the floor. The data generated by sensors in pneumatic cylinders could be monitored in real time at the point of origin. Cumulocity IoT—fitted with Dell's Edge hardware devices—would enable real-time reporting on machine latency times, alerts to prevent impending faulty productions, and reports about unplanned machine downtime.

And there was more: With its built-in learning algorithm, SMC would be able to partner with customers to get reliable analytics tailored to each machine. This would enable them to move away from the standard PLC (Programmable Logic Controller) limit value alert.

"Under certain conditions, a cylinder in machine 'A' might experience a drop of 10% pressure and report an error, while a machine 'B' with the same drop does not report such downtimes. This anomaly relates to the products, machines and applications our customers are using," Prang said. Machine learning enables SMC customers to analyze results and intelligently adapt how they are each interpreted. No wonder the solution caught a large new customer's eye at the Nuremberg event.

From knowledge to wisdom with Cumulocity IoT

But the new business and use cases don't stop there. SMC customers can now deploy a leakage detection service. Here, Cumulocity IoT analyzes how much compressed air is being utilized. This can enable early detection of a downstream issue that might lead to process failure. When a valve is consuming more air than expected for a process, a message is sent out to an ERP/MES-system.

And as if that wasn't enough, "smart field analytics" has found another area in the manufacturing market: Energy efficiency monitoring. The first customer—a world-renowned supplier of automobile components—is already interested. In this application, the pressure and flow data that Cumulocity IoT captures on the edge can be combined with data relating to peaks in consumption during machine startup. This can be used to monitor energy consumption and optimize total factory efficiency. End-user machine-operation knowledge, combined with SMC's machine-building knowledge and Software AG's IoT knowledge, creates wisdom capable of saving money, time and the planet.

Take the next step

To learn more, contact your Software AG representative or email us at: customer_marketing@softwareag.com.

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