

SIG partnered with PTC to generate powerful improvements

In the world of manufacturing, efficiency is everything—but already efficient systems can be the hardest to optimize. Unlocking that “last mile” of efficiency can mean the difference between success and failure in the future. Read how SIG partnered with PTC to improve an already efficient system, helping

- secure their position as an
- industry leader.

SIG helps customers stand out from the competition

Walk down any aisle of a grocery store and you'll see hundreds, if not thousands, of different packages. Varying colors, styles, brands, and material all compete for attention. But grabbing your attention doesn't just mean having the flashiest packaging—food and beverage companies know that consumers also look for packaging that is convenient, functional, and sustainable. In short, standing out from the crowd has never been harder.

SIG is an international, leading systems and solutions provider for aseptic packaging that's always in style. Founded in 1853 and headquartered in Neuhausen am Rheinfall, Switzerland, SIG manufactures aseptic carton packaging and equipment for the highest-quality beverages and liquid foods. They produce more than 38 billion cartons a year, filling more than 10,000 products delivered to partners in 68 countries. And their business itself is global—they operate seven production plants in six countries, from China to Saudi Arabia to Brazil.



SIG was diligent about capturing and tracking KPIs through their manufacturing execution system (MES) and had several decades of experience to inform their approach. However, SIG—like all commodity manufacturers—faced continuous cost pressure. On top of this, SIG was doubling down on their commitment to sustainability and empowering employees. To maintain their position as an industry leader, SIG knew they had to push for more.

BILLION CARTONS
PER YEAR **38**

COUNTRIES
DELIVERED TO **68**

PRODUCTION
PLANTS **7**

COUNTRIES
OPERATING IN **6**

Incremental improvements are the difference between success and failure

Incremental improvements in an already efficient system are often the hardest to realize. Swimmers swim tens of thousands of laps in their career. Each lap the same as the last. But a swimmer's success depends on being able to swim that same length faster and faster. Every incremental improvement

is necessary. The slightest adjustment can be the difference between a spot on the podium and going home early.

In the world of manufacturing, finding a competitive edge when producing a commodity product is like shaving precious seconds off a lap time. For SIG, achieving their business goals also meant focusing on optimization and cost reduction. In order to realize those key incremental gains, SIG recognized there were opportunities to enable connectivity and improve visibility into operations.

To start, SIG identified areas where they could reduce the need for manual inputs. Digitization would offer a clearer view of asset performance and drive efficiencies—building on the detailed KPI and data capturing they already performed. Additionally, connecting their specialized production lines and custom machines would give them more transparency across their plants.

With proven solutions designed to improve visibility and connectivity, SIG knew PTC was the right technology partner to uncover the incremental improvements that would impact the bottom-line.

SIG infused their operations with connectivity and visibility

SIG optimized the “final lap” through digitization and global standardization. Their goal was to fully connect production, through which all systems and machines could communicate and cooperate. By removing manual inputs and digitizing how they record data, SIG set out to leverage accurate, real-time data as the basis for KPIs to understand more effectively what was happening on the ground floor.

Teams across plants were working on different solutions to close this gap, but to unlock the most value from these initiatives, the project needed to be a single, global effort. SIG's global production improvement team, sitting at the intersection of business and IT, dedicated themselves to finding improvements and driving consistency across all plants. They decided to bundle these disparate projects and implement one solution that could realize gains across all their plants.

Because the approach wasn't greenfield, the flexibility and usability of PTC solutions was critical. The speed, security, and scalability of ThingWorx and ThingWorx Kepware Server made them the right solutions to drive SIG's digital transformation. Production machines aren't "standard" machines, and PTC technology offered the right system flexibility and product portfolio to connect the fleet of customized machines.

With PTC technology, SIG was able to connect machine PLCs, their existing manufacturing execution system, and other devices on the production floor. As a testament to the usability of PTC technology in combination with their Customer Success offerings—strategically packaged services, resources, and guides—SIG completed the full implementation on their own. And backed by personalized services from Customer Success Managers and the technical guidance of different PTC subject matter experts, the SIG team was able to access trainings, accelerate their learning of the application and system, and resolve critical challenges.

With flexible PTC technology, SIG was able to connect a fleet of customized machines to their MES.



Driving efficiencies and improvements globally

SIG implemented a flexible IoT solution that powered communication, connectivity, and visibility while still leveraging their existing systems. "PTC was able to help us normalize our disparate sources of data and increase the level of transparency across the factory operations," said Dr. Thomas Scheermesser, the Head of Production Process Improvement for Global Projects and Production Engineering at SIG.

These solutions leverage real-time asset and utilization monitoring to give SIG a clearer view into operations. For example, while monitoring their production process for efficiency, SIG discovered micro-outages that hadn't been tracked due to manual recording processes. Using real-time data, they were able to take this information into account, and by connecting production equipment with ThingWorx, they could visualize the data and KPIs to easily see downtimes, as well as other inconsistencies in the production machines themselves.

As a result of this increased visibility, SIG found that the speed KPIs of their production lines went up. Their efficiency metrics went down due to uncovering the true amount of downtime. But they also discovered unexpected insights, like their machines consuming more energy than was necessary. "We were pleased to see how quick and easy it was to connect power meters into the system," said Dr. Scheermesser. "The added visibility of the energy consumption of our machines is one of many levers to further reduce our carbon footprint." Ultimately, the solution provided full transparency into data that had previously been difficult to ascertain. Armed with an accurate measure of their plant's effectiveness, they were able to benchmark efficiency across their global locations.

From plant managers to business decision makers, visibility across operations empowers them to prioritize work and understand which problems to address. Production managers and operators can locate machines consuming too much energy when not in production—as this could indicate a mechanical problem, they can act immediately to reduce downtime. Furthermore, operators no longer have to rush to record downtimes, making their lives just a little easier. And business decision makers now have the context to make clear and informed decisions that improve asset optimization.



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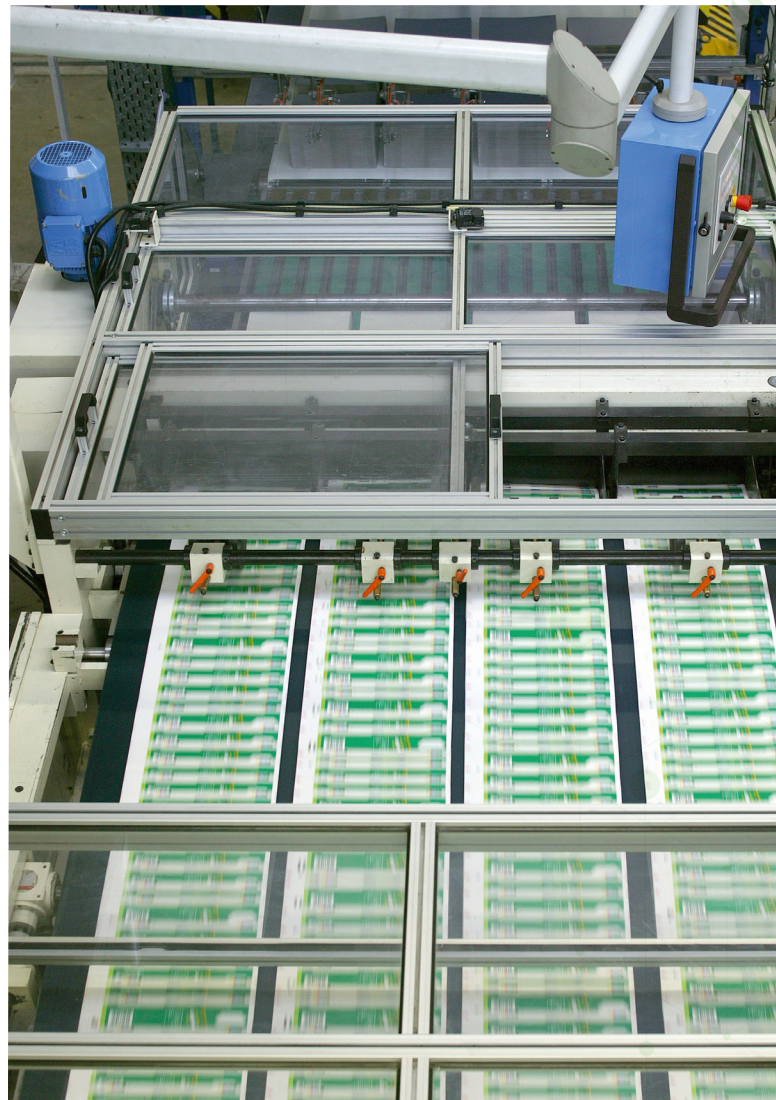
Looking to the future

Working with PTC, SIG was able to not only digitize their production, but also plan for the next steps of their digital transformation journey. First on the list: expand their current solutions to more locations. After successfully integrating two pilot plants over the course of a year, SIG is prepared to roll out their solution globally to their remaining five plants.

Leveraging their newly connected machines and MES systems, SIG plans to create functional user interfaces (UI) tailored to each of their locations needs to increase transparency across their entire production network. They're also exploring more automation scenarios—specifically, being able to detect machines operating outside of set parameters. They can now create alarms or even overrule the operator if necessary. And using advanced analytics, they'll be able to find correlations they otherwise never would have found, enabling other powerful use cases such as predictive maintenance.

The reduction of energy consumption is another clear SIG target. By connecting power meters and collecting data around downtime, they were also able to gain additional insight into energy consumption of their machines. They plan to use this data to improve sustainability and energy efficiency.

Navigating unknown waters is never easy. SIG's partnership with PTC has fueled their commitment to continuous improvement and helping their customers excel at what they do. After all the success they've already experienced, SIG knows digital transformation is the right adjustment they need to gain the competitive edge for the next lap.



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