



CUSTOMER CASE STUDY

Schneider Electric's Smart Factory Program: A lighthouse for digital transformation in manufacturing

Company Name - Schneider Electric
Industry - Manufacturing

Goals

- Transform global footprint of 100 discrete manufacturing sites to improve product quality, operational efficiency, and customer satisfaction.
- Apply Industry 4.0 technologies to connect shop floor to top floor for oversight of operational performance and asset performance.
- Develop “lighthouse” sites to scale best practices, expertise, and knowledge sharing.
- Enable sustainability through energy efficiency and a connected workforce.

Challenges

- Identifying a software solution to handle the company's broad and diverse network of manufacturing sites and product lines.
- Lack of visibility on shop floor activity due to lack of data, resulting in delayed response to issues on the line.
- Use of legacy systems, bespoke software implementations, and manual, paper-based processes.

AVEVA Solution

- AVEVA Discrete Lean Management to digitize lean manufacturing practices.
- AVEVA Enterprise Asset Management for asset performance management to reduce downtime and maintenance costs.
- AVEVA Insight to aggregate and visualize real-time performance data in the cloud.

Results

- Recognition of Batam, Indonesia site as a Fourth Industrial Revolution (4IR) Lighthouse by the World Economic Forum.
- Improved operational efficiency through real-time performance tracking and digital escalation for faster decision making.
- 44% less downtime.
- 40% increase in on-time delivery for customers.
- 21% energy savings achieved.

Schneider Electric's Smart Factory Program

A world leader in energy management and automation, Schneider Electric is committed to transforming its global manufacturing operations, leaning into Industry 4.0 to drive sustainability and scale.

The Smart Factory Program is a landmark project for the company, and the Smart Factory in Batam, Indonesia, is one of the program's showcase sites. In 2019, it was identified as a Fourth Industrial Revolution (4IR) Lighthouse by the World Economic Forum. In addition, the Ministry of Industry of the Republic of Indonesia designated it the first National Lighthouse that showcases Industry 4.0 in manufacturing. The factory was conceived and designed to embrace digital technology as part of a Smart Supply Chain plan to improve efficiency, boost customer service results, including on-time delivery and supplier service rate, reduce costs, and show how digital tools can improve manufacturing results.

Batam's digital transformation – the path to success

The Batam factory has been operating since 1991. It produces 11 lines of Schneider Electric's power and industrial automation products. The factory was operating efficiently using Schneider Electric's EcoStruxure solutions. However the team identified some key areas where additional software could boost operational efficiency. These included:

- The team wanted to improve oversight of the plant's operational performance and efficiency
- Management wished to develop more detailed data on equipment failures to pinpoint how to tackle them
- The team wanted to develop a new digital solution that could span the multiple facilities that comprise the Batam site

These challenges led the Batam team to explore new ways of working that would enable them to align their operational performance drivers to production and delivery, and reduce pressure on operating costs.

This led Schneider Electric's management team to turn to its partner, AVEVA, selecting solutions that would enable them to boost collaboration and unify data across the plant to manage, and even predict, equipment failures to optimize performance and reduce downtime.

“Our companies have a close connection, but we operate independently and there is power in our separate skill sets. AVEVA software is agnostic when it comes to hardware, and while we can choose any software for the job, we selected AVEVA as the right solution to achieve our goals for the Smart Factory Program.”

-

Anthony Loy,
Smart Supply Chain Program Director
Schneider Electric

Smart factory vision

Schneider Electric wanted to get to the next level of performance efficiency across its manufacturing operations. The team identified improving customer experience and increasing output and efficiency, using digital tools as key opportunities to build on.

Schneider Electric's Global Supply Chain leadership team wanted to standardize manufacturing capabilities across the company's global portfolio too. Using common, shared digital applications, they empowered the team in Batam to synthesize best practices from across the globe into a core manufacturing model. This model now acts as a template for efficient, visible, best-in-class manufacturing operations. It also facilitates knowledge sharing across the global team.

The Smart Factory Program optimizes end-to-end efficiency and delivers asset reliability in the industrial environment. It integrates innovative technologies, IT solutions, and data analytics into Schneider Electric's manufacturing operations, with a system targeted to address six key pain points:

- Agile Management – shop-floor agility, which enables the team to control output right across the factory value chain
- Process Efficiency – better closed-loop measurement and controls that allow greater throughput and faster processing
- Asset Performance Management – optimized asset use that improves profitability
- Empowered Operators – enabling operators to make more effective decisions on the factory floor
- Reliability – tools that support higher plant, process, and asset uptime
- Energy Efficiency – visibility, control, and optimization of power consumption and costs

“We share a culture of innovation. Our collaboration is what makes the connection special. It meant that, working together, AVEVA's experts and our team were able to co-develop the lean digitization system known as AVEVA Discrete Lean Management, which was custom coded specifically for our Smart Factory Program. It was then architected to enable any manufacturer to launch and scale a Smart Factory effort and refine it for their specific needs.”

-
Anthony Loy,
Smart Supply Chain Program Director
Schneider Electric

Bringing digital value to life through collaboration

Working closely with the factory team in Indonesia and the global supply chain leadership team, AVEVA pinpointed two product suites which could enable the team to optimize performance, reduce costs, and improve customer delivery. Those were asset performance management (APM) and manufacturing execution system (MES) solutions. The Batam team installed AVEVA Enterprise Asset Management and AVEVA Insight, and co-developed the AVEVA Discrete Lean Management, new software specifically targeted to streamline discrete manufacturing.

Some of the early business benefits include:

- The factory team can work more safely and efficiently
- Asset and process efficiency is optimized
- Secure and reliable operations are ensured

The Smart Factory Program identified three key metrics which support success in manufacturing digitalization:

1. Technology should be easy and secure, capable of being deployed swiftly and integrated with the broader technology stack
2. Process gains are more effective when they are standardized and deployed across a global portfolio as part of a cohesive, planned program
3. Involving your entire ecosystem, from technology providers to system integrators, in the planning and execution discussions is crucial to success

Together, Schneider Electric and AVEVA developed a dashboard to monitor and adjust for anomalies within the manufacturing processes. This gives the Batam managers real-time access to unified data along with automated notifications of plant performance and delivery, making it easier to keep performance on track and spot problems early.

44% less downtime

The Batam Smart Factory has achieved many benefits following the implementation, including:

- Maintenance 4.0 has helped decrease machine downtime by 44% in one year
- Digital performance management tools led to 12% higher operational efficiency, 5% higher employee engagement
- Quality 4.0 for defect reduction led to a 40% reduction in scrap costs for some critical machines
- Integrated supply chain increased suppliers' service rates by 70%
- As a result of the entire program, on-time delivery improved by 40%

“There’s no doubt that the Industry 4.0 capabilities we’ve applied have transformed our operations. By connecting ‘shop floor to the top floor,’ we have real-time performance tracking that was not possible previously, particularly if any paper-based processes were involved. The result now is quicker insight to enable faster decision making. We can stop the line through digital escalation if there is a quality issue. Ultimately, this capability is one of many that boosts operational efficiency that our Smart Factory environment enables.”

-

Wiranata Suganda,

Plant Director for the Batam Smart Factory and Digital Transformation Project Leader, East Asia and Japan
Schneider Electric

“The other benefit of digital transformation is our people – the software has had a positive impact on workplace culture. With data transparency, our teams have more trust in the data, and this leads to more trust between the individual workers. We’ve seen that when digital tools empower people, great breakthroughs are possible.”

With its Smart Factory Program, Schneider Electric is realizing the value that comes from collaborating with AVEVA within a digital factory.

Creating, supporting, and activating the global Smart Factory Program

The industry is taking notice of what Schneider Electric’s Smart Factory Program has achieved. Two of Schneider Electric’s Smart Factories – including the Indonesia site – have received the World Economic Forum’s Advanced Manufacturing Lighthouse award and become part of a select global network of sites embracing innovative digital transformation.

In 2020, Gartner ranked Schneider Electric’s Supply Chain #5 in the world, up from #11 in 2019, and first among its industry peers.

Together, Schneider Electric and AVEVA enabled the Batam team to improve operations, sustain efficiency, and reduce the factory’s manufacturing carbon footprint.



Promoting sustainability in the production process

The Smart Factory Program uses Schneider Electric's core digital manufacturing model. Founded on paperless operations and standardized manufacturing execution and measurement tools, the model unifies data from teams across the globe, surfacing the best solutions that enhance operational decisions and actions through improved data visibility and digital training.

The first step in building the model was to connect data analytics across the portfolio. Schneider Electric's team deployed a common digital platform and supporting applications in a disciplined, step-by-step approach across all of its factories worldwide. This helped each team access information about their plant and see their performance in the context of the global portfolio, enabling them quickly to spot opportunities to improve performance.

Smart Factories have improved end-to-end efficiency of manufacturing operations through:

- Energy efficiency – better visibility, control, and optimization of power consumption and costs
- Process efficiency – teams manufacture more products using fewer raw materials through better closed-loop measurement, operational tools that support greater throughput, and faster processing
- Asset performance management – using analytics, the team can optimize how assets are used throughout the factory to improve output and minimize unplanned downtime

The Smart Factory network has achieved some major sustainability benefits for Schneider Electric, including:

- 21% energy savings achieved at some sites
- 377 tons of CO₂ reduced across the world

This is just the beginning. As more facilities are added to the Smart Factory network, further benefits and efficiencies will grow.