

Solving crises in manufacturing



KIM CUSTEAU: AVEVA

Digitally transforming factories with the data-driven tools of Industry 4.0 will better equip manufacturers to deal with market disruptions and the many pressures they are facing

Manufacturers are dealing with several challenges along their value chain. While the sector was already being disrupted before the Covid-19 outbreak, recent events have further exposed structural weaknesses. Supply chains have been interrupted and have had to be redesigned. A volatile demand landscape has hit production cycles and disrupted inventory allocation. Add in labour shortages, an uncertain global economic recovery and increasing regulatory emphasis on sustainability, and manufacturers are faced with seemingly endless concerns about every aspect of their businesses.

“Digital initiatives can support resiliency, maintain momentum and enhance sustainability”

However, digitally enabled plants can help manufacturers manage the crisis and scale up for the future.

In a McKinsey global survey, 94 per cent of respondents said that Industry 4.0 tools helped them to keep operations running throughout the recent disruption. They can sustain and scale operations going forward.

AVEVA and Microsoft have responded to industry needs with a strengthened industrial offering to enrich manufacturers’ digital transformation journeys by creating profitable and sustainable business outcomes.

Hurt by the labour challenges, companies are looking to replace repetitive tasks with more physical and digital automation. Real-time, cloud-based remote access to plants and factories can improve decision-making and enhance collaboration for greater efficiency. Artificial intelligence can bridge knowledge gaps while optimising production and sustainability. In short, when a plant is digitally transformed, it is better equipped to deal with market disruptions outside the facility’s four walls – whether they are demand or supply related.

In Batam, Indonesia, a Schneider Electric factory used digital solutions to leverage innovation across the value chain with quantifiable and sustainable results. The facility produces 11 lines of Schneider Electric products. Although operations were functioning well enough with Schneider Electric’s EcoStruxure internet of things-enabled solution, factory management identified several other challenges. In addition to equipment downtime and problems caused by siloed data, there was a lack of visibility into shop floor activity, which resulted in delayed response times to issues on the production line.

Schneider Electric executives felt the answer lay in digital transformation. Smart factory solutions from AVEVA and Microsoft helped boost collaboration and unify data across the plant to manage and predict equipment failures, while optimising performance and reducing downtime.

AVEVA solutions for digital manufacturing streamline order flow and production



execution, tracking the transformation of products from raw materials to finished goods, while evaluating and analysing yield, quality and plant resource utilisation.

To improve asset performance management, Schneider Electric installed AVEVA Insight, and co-developed AVEVA Discrete Lean Management, new software specifically targeted to streamline discrete manufacturing. Together, the solutions continually monitor assets in real time to identify, diagnose and prioritise impending equipment problems.

The AVEVA software was deployed on the richness of Microsoft Azure. The two companies have a history of creating a powerful ecosystem that enables industries to achieve their business and sustainability goals. Joint customers can deploy faster, reduce energy consumption, cut emissions and share innovations, realising system-wide efficiencies.

Early business benefits in Batam included a safer and more efficient factory, optimised asset and process efficiency, and more secure and reliable operations. Within a short time of the implementation, Maintenance 4.0 had helped the Batam Smart Factory reduce downtime by 44 per cent over 12 months. Digital performance management tools led to 12 per cent higher operational efficiency and five per cent greater employee engagement. Quality 4.0 for defect reduction led to a 40 per cent decrease in scrap costs for some critical machines, while

an integrated supply chain increased suppliers' service rates by 70 per cent. As a result of the entire programme, on-time delivery improved by 40 per cent.

Most important for the team was how Industry 4.0 capabilities connected the shop floor to the top floor. Unlike in the past, performance can now be tracked in real time, enabling business leads to quickly make data-driven decisions in line with immediate market pressures. Across the value chain, improved resiliency strengthens trust and enhanced efficiency reduces the plant's carbon footprint.

The Batam facility now offers global manufacturers a template for best in-class digital manufacturing: it was recognised as a Fourth Industrial Revolution Lighthouse by the World Economic Forum. Schneider Electric has since extended knowledge gains from Batam across its worldwide network.

Like Schneider Electric, early digital adopters in the manufacturing sector fared better during the pandemic. From smart factory initiatives to e-commerce transformation, digital initiatives can support resiliency, maintain momentum and enhance sustainability. With the right digital toolkit, manufacturers can build a sustainable and competitive future. ■

Kim Custeau is senior vice president of asset performance management and manufacturing execution systems at AVEVA