EcoStruxure™
Innovation At Every Level

INNOVATION

Preparing for a fully automated future

How Schneider Electric helped a plastics manufacturer in Singapore overhaul their production cell to enhance competitiveness and growth with EcoStruxure™ solutions

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The Sanwa Story

Manufacturing accounts for 20.9% of Singapore's annual GDP, yet it faces mounting pressure from regional competition, a dwindling labour supply, and rising operational costs. For many, digitalisation is the answer—automation and data intelligence can improve factory productivity, develop skilled employees, and dramatically boost energy efficiency.

Sanwa has listened and is already building their factory of the future. Established in 1977 as a plastics manufacturer, the company has grown into an international presence that supplies Schneider Electric and car manufacturers in South-East Asia. They now operate nine factories from their global headquarters at Woodlands East Industrial Estate.

Despite their success, Sanwa knows they are vulnerable to shifting market forces. Sensing opportunity, they began their digitalization journey in 2016 with two long-term goals: to digitalize and automate their factories, ultimately achieving zero defective parts per million for their clients. In doing so, Sanwa would gain efficiency and demonstrable business growth, especially when only 13% in the region have started Industry 4.0 transformations.

The Challenge

First, they needed proven results. Sanwa started a pilot project with a single production cell as proof of concept for all their stakeholders. While they already had robotics for their moulding processes, they were still using a staffed production line for functional testing and packing. The first automation phase successfully showed that they could do more with the same manpower, with localized data collection. The next step in 2018 was to link more of such production cells together into a data network.

Forming that data network was crucial for Sanwa for it determined all the necessary steps forward. Other than productivity, their chief concern was traceability and transparency—they were losing time and money on dated manual reports. Furthermore, new data insights will let them reliably identify areas of improvement or better conduct predictive maintenance, processes that should not hinge on their engineers' instincts but on actual statistics. (continued on next page)

Goal

- Progressively digitalize nine factories to enhance competitiveness and growth
- Achieve zero defective parts per million for their customers

Solution

- EcoStruxure Augmented Operator Advisor
- EcoStruxure Machine Advisor Harmony Hub & Power Tag sensors

Results

- Significantly increased productivity

The Solution

After approaching Enterprise Singapore for assistance, Sanwa decided to build a 580 sqm model factory area within their Singapore plant in 2019. This new development covered their automotive components line, with consultation from Schneider Electric, iPlast 4.0, and other industry partners. Following field investigations and interviews, Sanwa adopted EcoStructure™ architecture to drive all their data collection and visual interfaces.

Compact NSX circuit breakers were installed for their remote monitoring capabilities, allowing Sanwa to pinpoint energy consumption to individual machines. While these already have a SmartLink gateway, Sanwa is planning to implement Schneider Electric's Harmony Hub wireless gateway during Phase 2 of its Digitalization Journey for comprehensive IoT coverage. This allows Sanwa to not only monitor energy consumption but also temperature, humidity, and pressure through a host of wireless sensors

iPlast 4.0 collects and analyses this data with an on-site manufacturing intelligence system, which is then relayed back to the operations team through other Schneider Electric solutions. In the next phase, Sanwa plans to implement the Harmony Hub Web Terminal and Harmony Hub Wireless Push Buttons which work towards the remote management set-up that Sanwa envisions, where all operations can be done from a central command station rather than distributed teams on the factory floor.

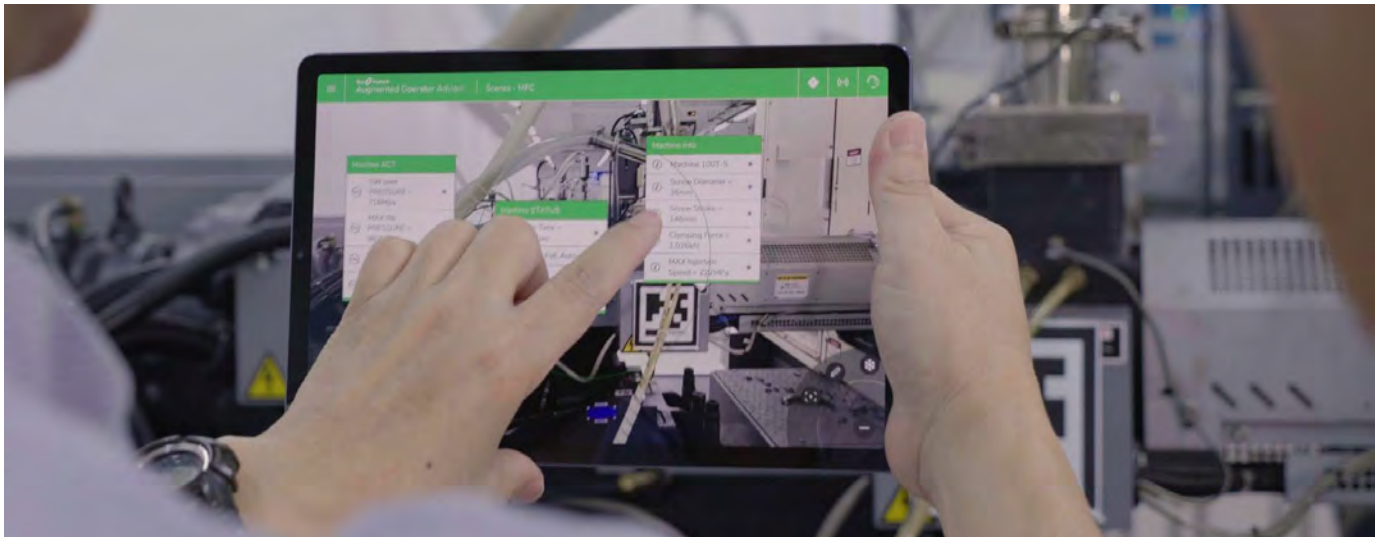
To further empower floor inspections, Schneider Electric equipped Sanwa with Machine Advisor and Augmented Operator solutions. With a computer tablet in hand, workers can simply scan a QR code on the respective machines to receive real-time data superimposed via augmented reality. This intuitive approach speeds up diagnostics and allows workers to focus on the high-level data analysis needed to boost efficiency.

The Bottom Line

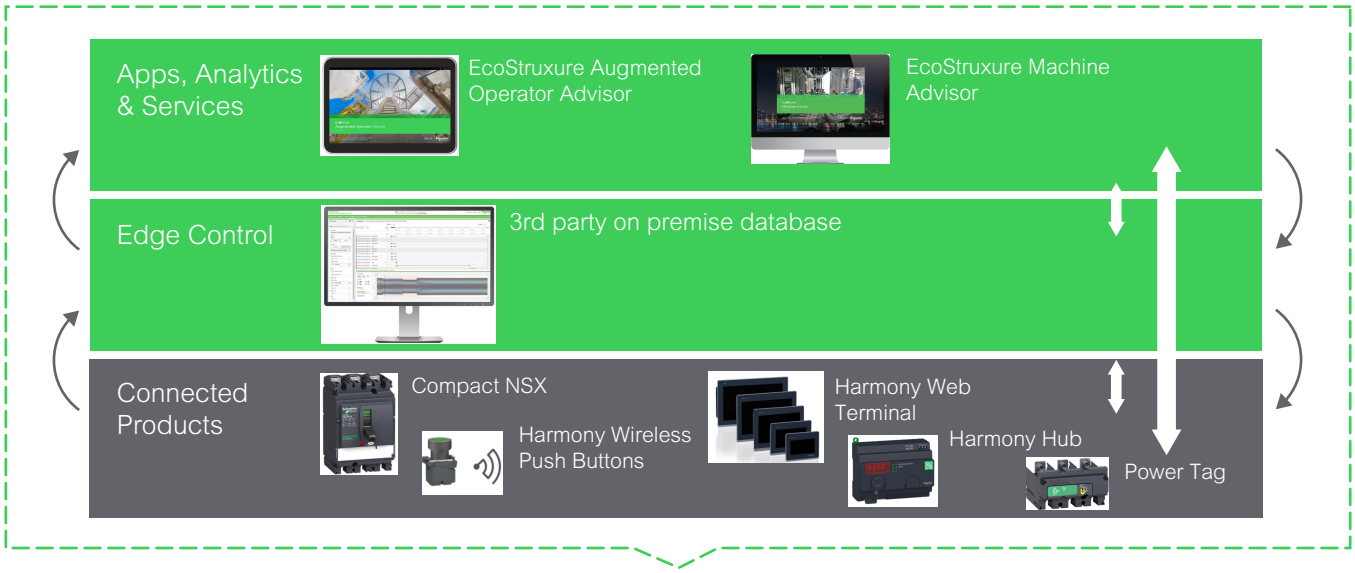
After integrating solutions proposed by Schneider Electric, iPlast 4.0, and other industry partners, Sanwa considers their new model factory a success. Data analysis is now 80% live, and their production cells have been drastically transformed into fully automated cells. They are now able to do more with the same amount of manpower as a single worker can oversee multiple cells.

Sanwa is training this freed-up manpower for more valuable positions, and the energy savings borne by machine-level monitoring has translated into cost reductions for their customers. They can also precisely factor in the cost of energy required to produce a single product unit and this has allowed them to accurately cost their products, thus giving their customers the optimal rates. These energy savings also come at a time where costs are expected to rise for their factory in Batam, Indonesia.

Looking forward, Sanwa intends to replicate this model factory setup to their other production facilities in Singapore. Once those are live, the manufacturer will then carry the model to their overseas factories in Indonesia, China and India.



EcoStruxure™ Innovation At Every Level **Machine**



EcoStruxure™ Architecture

EcoStruxure™
Innovation At Every Level

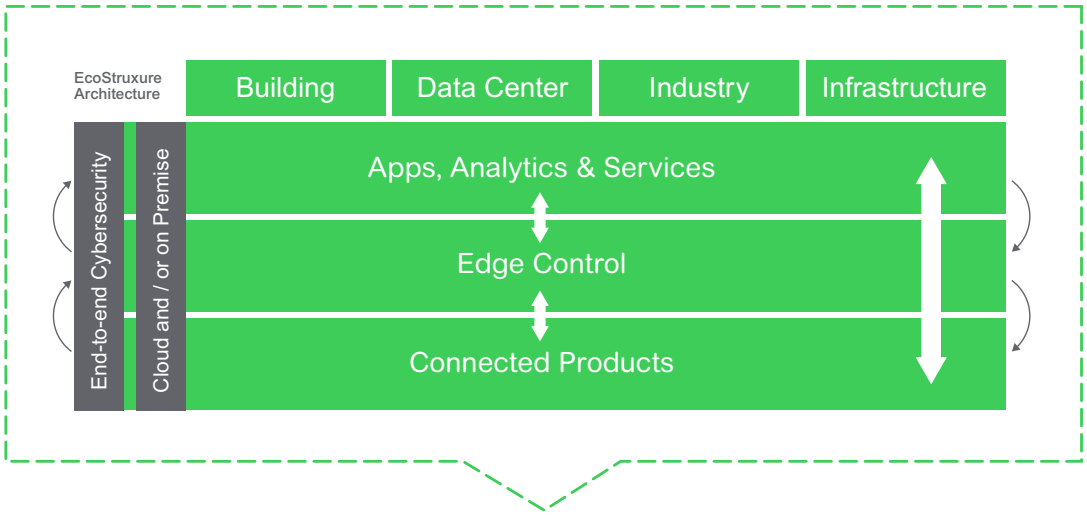
IoT-enabled solutions that drive operational and energy efficiency

EcoStruxure is Schneider Electric's open, interoperable, IoT-enabled system architecture and platform.

EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers.

EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level including Connected Products, Edge Control, and Apps, Analytics & Services. EcoStruxure™ has been deployed in 480,000+ sites, with the support of 20,000+ system integrators and developers, connecting over 1.6 million assets under management through 40+ digital services.

One EcoStruxure architecture, serving 4 End Markets with 6 Domains of Expertise



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Connected Products

The Internet of Things starts with the best things. Our IoT-enabled best-in-class connected products include breakers, drives, UPSs, relays, sensors, and more. Devices with embedded intelligence drive better decision-making throughout operations.

Edge Control

Mission-critical scenarios can be unpredictable, so control of devices at the edge of the IoT network is a must. This essential capability provides real-time solutions that enable local control at the edge, protecting safety and uptime.

Apps, Analytics & Services

Interoperability is imperative to supporting the diverse hardware and systems in building, data center, industry, and grid environments. EcoStruxure enables a breadth of agnostic Applications, Analytics, & Services for seamless enterprise integration.

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