# DIGITAL

# The sweet taste of digitization

Yunzhibao Foodstuff Co. Ltd., Jiangsu, China

A smart revolution with EcoStruxure™ Plant

se.com/food-beverage

## Introduction

Yunzhibao Foodstuff Co., Ltd. has been making and exporting confectionary ever since it opened its doors in 1995. During more than 20 years of innovation and close cooperation with many of the world's best-known food companies and supermarket chains, they have developed over 200 different candy products. Their newest factory, located in the Jiangsu province, is now the largest candy producer in China.

## The foundation of a smart factory

Rapid company growth coupled with a fast-moving and ever-changing consumer market prompted Yunzhibao to build an industry-leading, smart candy factory, with an intelligent management and control system at its core.

However, at the beginning of the project, there was no mature blueprint for what this should look like. They needed professional consulting services to help them plan their new facility. For this, they turned to Schneider Electric.

"We chose to work with Schneider Electric because of its expertise in designing, implementing, and maintaining smart factory solutions," said Yu Zhong Xu, President of Yunzhibao Foodstuff Co., Ltd.



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## Goal

To improve production efficiency and quality control by upgrading the control of production processes, and building a truly smart factory.

## Story

The fast-moving consumer market led Yunzhibao to build a cutting-edge plant with an intelligent management system at its core.

## Solution

A full EcoStruxure Plant solution Food & Beverage, including AVEVA's* MES, Historian & Citect SCADA, Modicon M580 & M340 PACs, Harmony HMI, switches, sensors, & power meters - as well as consulting, design, delivery, & execution services.

## Results

- 10% increase in production & operational efficiency
- 15% increase in stability
- 30% savings in labor time
- 5% drop in direct production costs

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Schneider's audit of the various processes at Yunzhibao revealed that their biggest challenge was, in fact, the manual nature of the factory's production and management processes. It determined that they urgently needed to automate these processes and improve their standardization. For instance, final product quality needed to be standardized to eliminate deviations caused by various operators operating the same production line slightly differently from each other.

The next step was to do away with the "black box" state of Yunzhibao's operations and production. At its older factory, workers would record everything on paper. As the workers completed their shift, they would write down the relevant information and pass it along to the next shift. This handover process was prone to errors and greatly reduced data credibility. The whole operations and production process lacked transparency. Managers couldn't easily access the important data they needed, and equipment failures affected production.

Finally, it also became clear that all product-related process knowledge needed to

be transferable. Excessive reliance on individual workers and the inability to capture and accumulate their knowledge and experience was a vulnerable point in Yunzhibao's operations.

To overcome these challenges at Yunzhibao's new plant, Schneider Electric delivered a comprehensive automation and digital solution based on EcoStruxure, our open, interoperable, IoT-enabled system architecture and platform.

## MES, the hero of smooth production

"Based on a deep understanding of Yunzhibao's requirements, Schneider Electric developed a comprehensive and future-oriented digital plan for our factory, providing us with an EcoStruxure Plant solution," says Yu Zhong Xu.

All production at Yunzhibao's new factory is now flexible, efficient, and systematic thanks in particular to two components of their EcoStruxure Plant solution:

On the hardware side, the Modicon M580 and M340 PACs are the basis for efficient and automated production. They are the

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"visible guards" of the production line, ensuring continuous production with stable and reliable performance.

On the software side, AVEVA's MES, customized by Schneider Electric for the Food and Beverage industry, is the "invisible guard" of the production line, enabling Yunzhibao to operate efficiently around order production, gain transparency and effective collaboration, and quickly respond to the fluctuations in demand for their hundreds of types of sweets from customers, both at home and abroad.

Specifically, the MES can receive production orders from the ERP system and allocate them to each production line, according to individual constraints, to form a batch plan. This is then broken down into work orders which are connected to production standards and formulas sent to the control system to standardize control and prevent errors.

For each work order, the MES can obtain information from the Historian's real-time database on the output, material consumption, product quality, equipment operation, and energy consumption. This data also becomes the basis for tracking the production process. Should any issue arise related to product quality or the equipment, the plant manager can now immediately trace from the raw materials through production to the finished product to identify what went wrong and where. Using mobile devices or computers, Yunzhibao's decision makers can also understand an order's progress, any spare capacity on a production line, and other important information – in real time. All this information supports and strengthens their decision-making process.

The MES also plays an important role in ensuring food safety, a key priority for any food producer. At Yunzhibao, the system can strictly control the product formula,

## 10%

increase in production & operational efficiency

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ingredients, and automatic feeding to effectively prevent food safety incidents related to the candy.

In terms of product quality management, Yunzhibao's MES will automatically trigger an inspection according to standard operating procedures and record the resulting data on the production process and finished products. This standardization of the production process ensures a 100% qualification rate when the products come off the production line.
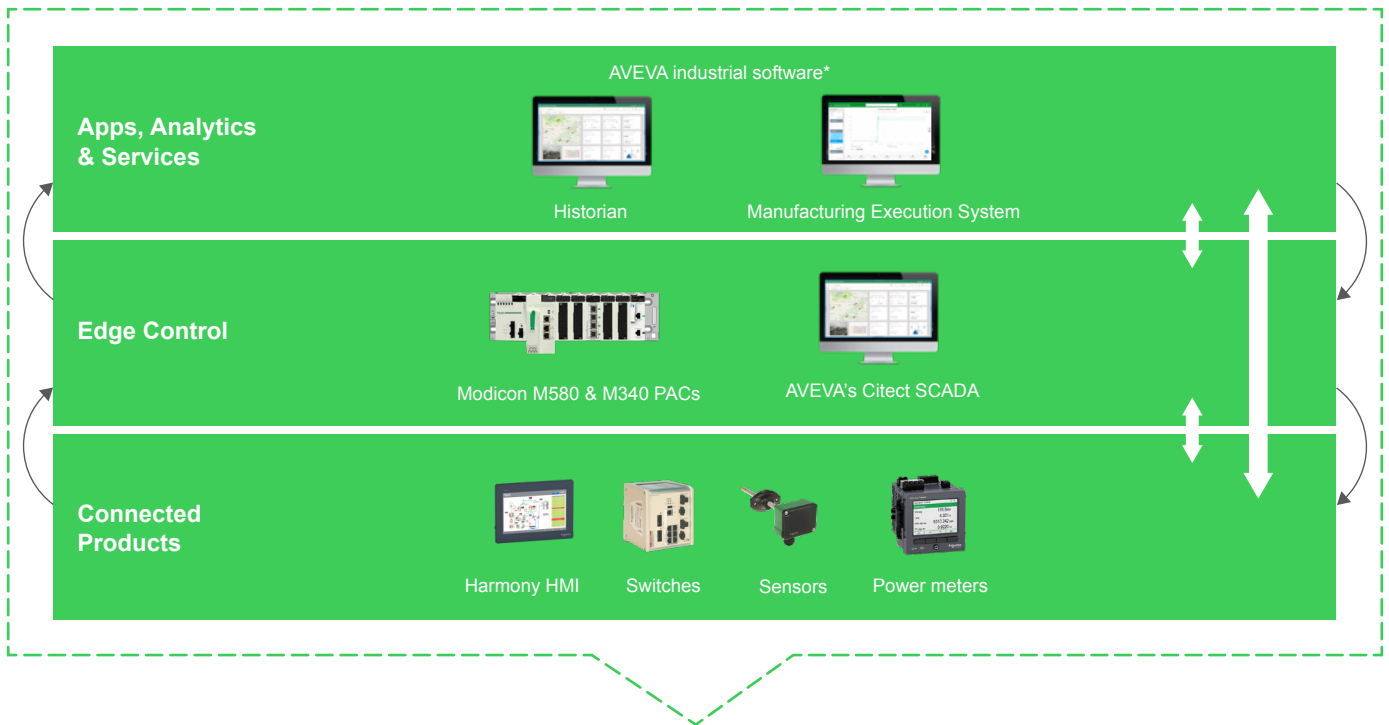
Finally, in conjunction with the Citect SCADA system, the MES can devise early warning strategies for different pieces of equipment and establish early warning models so that predictive maintenance can be carried out, ensuring their production equipment operates at optimal levels.

## The proof is in the candies…

Since implementing the EcoStruxure Plant solution, Yunzhibao has optimized its production process and improved the levels of material and quality control. Compared to its other facilities, production and operational efficiency at its new smart factory have increased by 10%, stability has improved by 15%, labor time has been cut by 30%, and direct production costs have dropped by 5%.

"Looking to the future, with further upgrades to our company's digital capabilities, we are committed to establishing Yunzhibao as a benchmark in the domestic – and even global – confectionary industry," concluded Yu Zhong Xu.

EcoStruxure™
Innovation At Every Level  for Food & Beverage



**Apps, Analytics & Services**
AVEVA industrial software*
Historian            Manufacturing Execution System

**Edge Control**
Modicon M580 & M340 PACs        AVEVA's Citect SCADA

**Connected Products**
Harmony HMI    Switches    Sensors    Power meters

EcoStruxure Architecture

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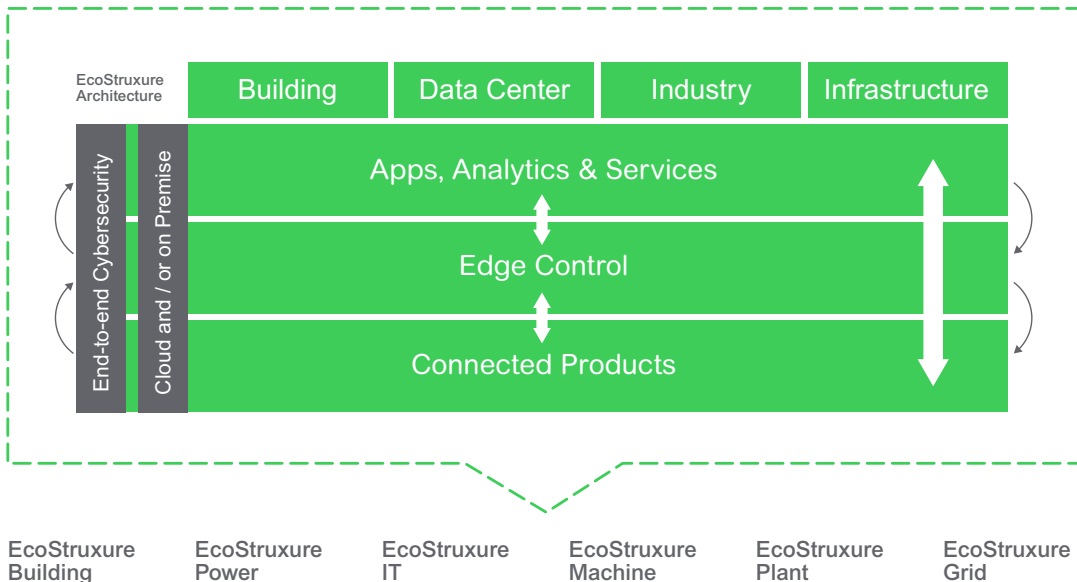# Eco Struxure™

## 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



| EcoStruxure Architecture | Building | Data Center | Industry | Infrastructure |

End-to-end Cybersecurity | Cloud and / or on Premise

Apps, Analytics & Services

Edge Control

Connected Products

EcoStruxure Building | EcoStruxure Power | EcoStruxure IT | EcoStruxure Machine | EcoStruxure Plant | EcoStruxure Grid

### 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.

### Find out more about EcoStruxure

schneider-electric.com/ecostruxure

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Intuitive Industries - digitized!



Learn more about EcoStruxure for the Food & Beverage industry



Better control with the Modicon M580 PAC



Explore our range of industrial automation software



See our other customer stories

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