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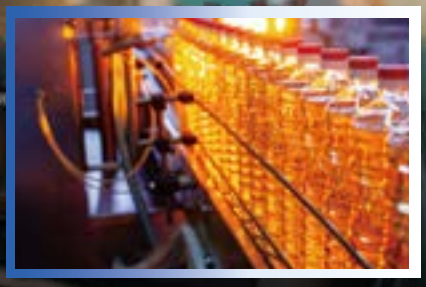
The WISE-IoT Magazine

Intelligent Factory

August 2023

Transforming the Global Manufacturing Landscape with IoT



Application Story

Advantech's IoT SaaS Platform Empowers Canadian Packaging Factory with Smart Applications **p.16**

Unleashing the Power of Smart Manufacturing with iFactory/OEE **p.19**

Advancing Automotive Leaf Spring Production Through Smart Manufacturing **p.30**

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Address
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei, Taiwan 11491
Tel +886-2-2792-7818
Website www.advantech.com

Editorial Supervisor
Brand Development & Public Relations, WISE-IoT Marketing

Edit Production
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WISE-iEMS Total intelligent Energy Management Solutions

ESG / Carbon Neutral / Net Zero / Carbon Reduction / CBAM / CCA

Carbon

CarbonR
Carbon Emission Management

ECOEnterprise
Energy Management

Energy

ECOWatch
Energy Management

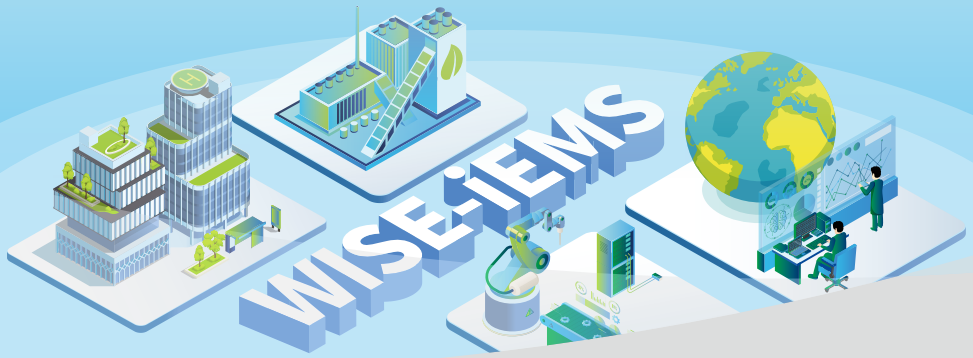
ADVANTECH
WISE-iEMS

Critical Energy Consumption Equipment

HVAC
HVAC Energy Efficiency Management

Compressor
Compressor Energy Efficiency Management

PHM
Rolling Pump Efficiency Management



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Carbon Inventory → Emission Reduction Scenario → Formulate Emission Reduction Targets/Schedules → Execution of Emission Reduction → Make an Exchange → Carbon Neutral

iEMS/CarbonR ▶	Review enterprise carbon emissions and product carbon footprint with a digital carbon inventory system and strategy to improve energy efficiency. The goal is to help enterprises manage their carbon assets in compliance with ISO 14064/ ISO 14067 to achieve carbon neutrality targets.
iEMS/ECOEnterprise ▶	Customizable management inspection dashboards and KPI control for projects like SBTi & RE100, etc.
iEMS/ECOWatch ▶	Monitors energy consumption of utilities, makes statistical comparisons, manages demand and resource allocation, with automatic energy declaration and compliance with ISO50001, etc. to assist enterprises with complete digital energy transformation in pursuit of energy conservation to achieve emission reduction goals.
iEMS/HVAC ▶	Performs energy-saving control and predictive maintenance to realize intelligent management of the whole process.
iEMS/Compressor ▶	With an ideal combination of centralized control and information processing of the compressor system, energy-saving control and predictive maintenance can be realized. This improves the management efficiency of the entire compressed air system.
iEMS/PHM ▶	This system detects abnormalities and wear of motor equipment, determines the status of equipment, and improves the maintenance efficiency of rotating mechanical equipment to increase equipment service life and reduce life cycle operating costs.

Energy Management Products

Reshaping Global Manufacturing Through Digital Transformation

The global reshaping of supply chains has been triggered by events such as the US-China trade war, the COVID-19 pandemic, and the Russia-Ukraine conflict. This has placed significant burdens on the manufacturing industry across the globe, necessitating the acceptance of intelligent technology for driving digital transformation and establishing smart factories. Such measures have become essential for enterprises to uphold their competitive edge.

This issue focuses on smart manufacturing and shares insights from several industry professionals to provide manufacturers with a clear understanding of the various strategies and methodologies employed in digital transformation.

In Advantech View, Allan Tsay, General Manager of Advantech China's Industrial IoT Business Group, discusses the role of Advantech's WISE-iFactory smart factory solutions in expediting the shift to smart manufacturing in China. Jerry Ogorman, V.P of Industrial IoT at Advantech, emphasizes the company's collaboration with ecosystem partners to create comprehensive solutions focusing on efficiency and sustainability.

In the Power Insight column, Kevin Chang, Microsoft HighTech Manufacturing Industry Executive, discusses the growing prominence of generative AI and its influence on the manufacturing sector. He additionally remarks on the integration of Advantech's WISE-iFactory solutions with both traditional analytical AI and emerging generative AI, to augment the intelligent capabilities of industrial computers.

This issue features six case studies that highlight Advantech's global partnerships, presenting the most recent advancements in smart manufacturing. One such example is the collaboration between Integral Systems and Advantech, where the iFactory/Maintenance and iFactory/PHM solutions were implemented to enhance equipment and facility management. Additionally, Chur, a system integrator specializing in Industry 4.0, effectively tackles production, management, and sustainability challenges by leveraging Advantech's iFactory solutions, including OEE and EHS, as demonstrated in the case studies.

In the Customer Partnership section, we outline Advantech’s cooperation with Autotech Machinery Vietnam JSC in implementing an OEE iFactory solution and ways we have helped manufacturers in Vietnam improve equipment availability.

Advantech, as a major provider of cutting-edge smart factory solutions, remains committed to collaborating with global partners. Together, we strive to develop solutions that facilitate the rapid digital transformation of manufacturing while boosting competitive advantage.■

Advantech WISE-i

Enhance OEE and Productivity thro

WISE-iF

Data AI

- Machine Operation Management
- Manufacturing Demand Forecasting
- Predictive Maintenance

Total Productive Maintenance

- Production Efficiency Monitoring
- Event Reporting
- Equipment Health Management

Dashboard & S

- Real-Time Situ
- Data-Driven De
- Production Sta

Private Cloud

WISE-STACK

WISE-I

WISE-VisualSuite

WISE-InsightAPM

Plant Floor - Rea

Production Lines / Process Decisio

Machine Operation

- Sensor / PLC Data Acquisition
- Pre-Processing Machine Data

Process Control

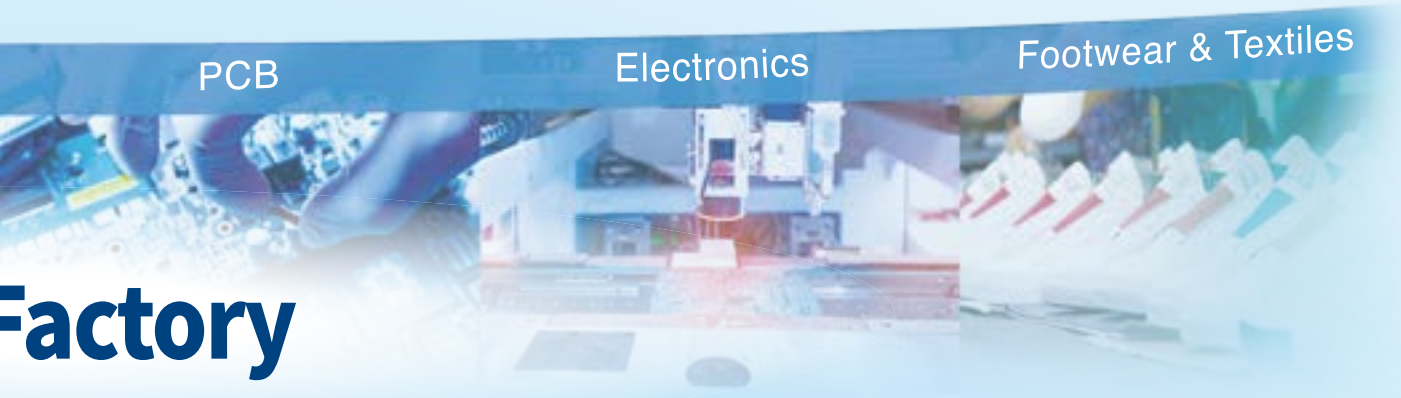
- Work & Routing Instructions
- Job Reports / Field Operations

IoT-Enabled Legacy Equipment

Digital Proc

Factory Solutions

ough Total Productive Maintenance



Factory

Vision AI

- AI-Based Quality Inspection System
- Facility Management
- Inventory Management

ituation Center

ation Awareness
ecisions
atus Simulation

Energy Management

- Effective Energy Saving
- Carbon Footprint Reduction
- Work Safety and Sustainability

Public Cloud
aws Azure
Alibaba Cloud

oTSuite

EdgeSync 360

WISE-DataInsight

l-Time Monitoring

ons / Plant & Environment Facilities

Operator Interface
- HMI / Touch Panel
- Barcode Scanner / RFID / NFC

Visual Examination
- Camera Input
- Sensors / PLC

luction Line

Intelligent Automation

Advantech Accelerates Smart Manufacturing in China and Europe

Photos provided by Advantech
Interview with Allan Tsay, General Manager of Advantech China's Industrial IoT Business Group; Jerry Ogorman, V.P of Industrial IoT of Advantech

Over the last couple of years, the surge in smart manufacturing implementation has been fueled by several factors, including supply chain transfers, increased energy costs, and the maturation of AIoT technology. In both China and Europe, Advantech's comprehensive assistance and WISE-iFactory Smart Factory Solutions are aiding numerous manufacturers in expediting their transition to smart manufacturing.

The growing prevalence of smart manufacturing

According to Mr. Allan Tsay, General Manager of Advantech China's Industrial IoT Business Group, the maturity and affordability of intelligent technology solutions, combined with the success of large-scale smart manufacturing projects in China, have resulted in changing attitudes among manufacturers with approximately 1000–2000 employees. Nonetheless, while there is a growing inclination to invest in the deployment of intelligent technology, China's manufacturing industry continues to face disparities in the level of implementation. This imbalance has emerged as a bottleneck in the advancement of intelligentization efforts.

While the semiconductor and automobile sectors are at the forefront of the Industry 4.0 revolution, traditional manufacturing industries such as textiles, metal processing, and food processing are still trailing behind, and some manufacturing plants have yet to establish even basic device networks. As a result, the wide variation in the level of intelligentization across industries necessitates diverse solutions. To tackle this challenge, Advantech has categorized factory transformation into four stages: equip-

"China's manufacturing industry is quickly advancing toward intelligentization. To keep up with this trend, Advantech will focus on developing new I.Apps for different manufacturing fields through internal R&D and external cooperation."

- Allan Tsay, General Manager of Advantech China's Industrial IoT Business Group

ment interconnection, database integration, data visualization, and AI analysis. Leveraging the WISE-iFactory Smart Factory Solutions on the WISE-IoT platform, along with a suite of over one hundred I.Apps like OEE and EHS, Advantech offers manufacturers tailored solutions that align with their respective stages of transformation. These solutions empower manufacturers to swiftly integrate AIoT applications while maintaining cost control.

Advantech to focus on new I.App development

Mr. Allan Tsay stated, “Many manufacturers in China face hurdles when it comes to achieving equipment interconnectivity. These challenges arise from the use of outdated equipment and the adoption of disparate communication protocols. To address this issue, Advantech offers the OEE I.App solution. It enables factories to efficiently gather and consolidate equipment data, enhancing overall equipment efficiency.”

He went on to say, “By storing all equipment data in a unified database, the solution facilitates quick analysis and visualization. With this, manufacturers can monitor machine utilization rates, production efficiency, and product quality across all their factories. This comprehensive overview enables them to enhance production strategies by leveraging abnormal trend analyses.”

Acknowledging the unique requirements of various manufacturing industries, Advantech actively engages in collaborations with Chinese system integrators (SIs). An exemplary partnership is the one forged with KEYENLINX, an SI specializing in textile manufacturing. Through this collaboration, new applications for equipment management in textile factories have been developed, leveraging the capabilities of the OEE I.App. While the current implementation of AI in factories may be limited, Advantech remains at the forefront by collaborating with expert SIs in AI technology. Together, they are jointly developing AI image analysis and recognition applications, positioning themselves ahead of the curve.

According to Mr. Allan Tsay, China's manufacturing industry is rapidly progressing towards intelligentization. To stay abreast of this trend, Advantech directs its efforts towards the development of new I.Apps, employing both internal R&D and external collaborations. The objective is to build a more diverse and comprehensive WISE-iFactory platform while simultaneously establishing a complete smart manufacturing ecosystem in China. In partnership with the industry, Advantech plans to implement additional smart factory benchmark projects in major cities across the country. These projects will effectively demonstrate the benefits of smart manufacturing and encourage smaller manufacturers to embrace the principles of Industry 4.0.

Advantech realizes efficiency and sustainability in manufacturing

Similarly in Europe, Advantech is playing a vital role in bridging the gap between IT and OT systems to enhance productivity and sustainability in manufacturing. The open architecture of the WISE-iFactory platform ensures seamless scalability and easy integration with other solutions, enabling SIs to customize systems according to the specific requirements of smaller manufacturers.

Mr. Jerry Ogorman, V.P of Industrial IoT at Advantech, stressed the importance of provid-

ing an accessible starter kit to help end users initiate their digital transformation journey: “A starter kit can help users collect critical data and insights efficiently, which are essential for informed decision-making. The OEE I.App is an effective starting point for manufacturers looking to improve their total productivity management suite. By analyzing the output of OEE, SIs can determine the most suitable I.App or ecosystem partner application and gradually scale up to more advanced solutions, further enhancing their productivity over time.”

Advantech’s reputation has primarily been around delivering IoT hardware solutions. However, with the recent launch of the starter kit and open architecture approach, Advantech is now providing a flexible and efficient “drop-in” solution. In many instances, SIs are faced with the task of interfacing with existing equipment and obtaining data in a specific format. Advantech’s starter kit is an optimal combination of hardware and software that obtains this quickly and efficiently, providing customers with valuable data and meaningful insights, as well as highlighting any potential issues. This gives SIs situational awareness and allows them to scale up over time. The starter kit is a highly successful tool that empowers customized solutions that fulfill the unique needs of individual manufacturers.

Advantech’s WISE-iEMS Energy Management Solutions, when integrated with WISE-iFactory OEE, can provide an in-depth energy profile for each product manufactured, enabling better equipment utilization and process efficiency while reducing energy consumption. Advantech’s solution also enables manufacturers to comply with sustainability regulations by providing energy and carbon footprint reports, enabling a more eco-friendly production process.

“As a technology company, Advantech is committed to an open architecture platform that fosters collaboration with other ecosystem partners, with the aim of developing solutions that encompass both efficiency and sustainability.”

- Jerry Ogorman, V.P of Industrial IoT at Advantech

As a technology company, Advantech is committed to an open architecture platform that fosters collaboration with other ecosystem partners, with the aim of developing solutions that encompass both efficiency and sustainability. According to Mr. Ogorman, Advantech’s goal is to help manufacturers in achieving their efficiency and sustainability targets, which requires engagement with ecosystem partners to deliver the most effective solution. By pooling our expertise with that of our partners, we can work together to create a more sustainable future across numerous industries.■

Improve Your Factory Automation Line Efficiency

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The WISE-iFactory Quick Response Starter Package focuses on the performance of automation equipment.

- Real-time monitoring of equipment status and key production information
- Easy monitoring of current production status through dashboards
- Clear history of production events for analysis
- Data pre-processing for useful production information
- OEE and event visualization for live insights
- Andon reports for custom notifications of abnormalities

SRP-IFS420-E15OEE
1 x ECU-1251 or UNO-137 gateway, 12-month OEE & Andon I.Apps service subscription

IFS-RTM-U238W4QKR
1 x UNO-238 edge computing platform including the data pre-processing tool, 12-month OEE & Andon I.Apps service subscription

IFS-RTM-M770W4QKR
1 x MIC-770 edge computing platform including the data pre-processing tool, 12-month OEE & Andon I.Apps service subscription

Learn more

Contact us

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When Equipment Communicates Like a Human – Generative AI's Impact on Smart Manufacturing

Photos provided by Advantech
Article by Kevin Chang, Microsoft High Tech Manufacturing Industry Executive

In a 2016 TED Talk entitled *The Next Manufacturing Revolution is Here,* Olivier Scalabre, Head of the French office at BCG, shared his experience visiting a manufacturing site. To his surprise, the site had remained unchanged for several years, reflecting the stagnation in the manufacturing industry. Mr. Scalabre noted that previous cost-saving strategies, such as relocating overseas for cheaper labor, provided only temporary benefits without tangible improvements in labor standards. Moreover, rising labor costs have made offshore production less viable. With these challenges and the rise of Industry 4.0, manufacturers are now seeking more sustainable and effective methods to achieve their goals.

How does generative AI impact manufacturing?

In 2023, one of the most prominent topics has been the rise of generative AI and its transformative impact on the world. According to Sean Pien, General Manager of Microsoft Taiwan, ChatGPT demonstrates the power of generative AI, representing the most direct and real-time interaction between AI and humans to date. Within three months, discussions on generative AI have shifted from mere conversation topics to actionable projects, with many industry leaders exploring how they can utilize generative AI.

Following its launch by OpenAI in November 2022, ChatGPT reached 100 million registrations within two months, surpassing the growth rate of any other application to date. However, the question arises: how can ChatGPT be applied in enterprises and manufacturing?

Manufacturers traditionally rely on trained and experienced technicians to perform various tasks, such as identifying product quality abnormalities and their causes, performing equipment calibration and troubleshooting, determining equipment status through regular maintenance, and timely replacement of parts to prevent downtime. The key factor here is the expertise of experienced professionals. However, global labor force surveys reveal two concerning statistics: manufacturing industry ranks as the least popular choice among young people in the United States aged 18–24 years seeking a career path. Around 52% of young people express a disinterest in manufacturing and the shortage of skilled labor is expected to persist in the short term.

Accenture's March 2023 report highlights that 98% of CEOs worldwide recognize the

"In 2022, OpenAI released ChatGPT to the public, enabling the widespread use of AI. Microsoft has fortified this offering with various security measures, ensured compliance, and guaranteed service level agreements (SLAs), facilitating the application of AI in various fields."

- Kevin Chang, Microsoft High Tech Manufacturing Industry Executive

significant role AI will play in the future within their organizations. Senior leaders must deepen their understanding of AI if they are to redefine responsibilities and tasks within their organizations. Regarding various applications of AI—especially generative AI—in manufacturing, the primary consideration is how to leverage AI to absorb the experience that humans have accumulated over time. How can people overcome the limitations of technology and its relative inexperience compared to humans when it comes to manufacturing tasks?

Three scenarios for generative AI in smart manufacturing

Recent discussions and analyses within the Smart Factory Solution Department of Advantech's Industrial IoT Business Group have focused on how traditional analytical AI and emerging generative AI can be integrated within Advantech's WISE-iFactory solution. This will augment the intelligent capabilities of industrial computers to address the aforementioned challenges. Within one month, three major scenarios have been successfully implemented:

Scenario 1: Intelligent Machines — Autonomous alerts, suggested solutions, simulations, and log maintenance

1. WISE-iFactory integrates edge devices to help actively monitor data for abnormalities through iFactory.
2. Azure OpenAI Service can now read information from multiple endpoints, enabling the integration of data states into comprehensive descriptions.
3. Maintenance work orders are automatically generated for detected abnormalities, incorporating detailed problem descriptions, and promptly assigned to the responsible equipment engineer.
4. Engineers can use natural language to query past log reports, even across different plants or production lines.
5. Azure Cognitive Search can search the company's internal knowledge base or systems. Retrieved documents or records are consolidated into one or multiple potential causes with the corresponding solutions via Azure OpenAI Service.
6. Engineers can use "talk" to simulate commands and parameters with iFactory through Azure Digital Twins, receiving simulation results for analysis and decision making.
7. After confirming the execution of commands, engineers can instruct edge devices using iFactory. Azure OpenAI Service summarizes the problem-solving process and generates reports for maintenance log records.

Scenario 2: Intelligent Machines — Guiding equipment installation, deployment, and maintenance

1. Instead of reading manuals and following step-by-step instructions for equipment installation and setup, engineers can now use Azure OpenAI Service to analyze manuals and generate natural language instructions for guidance.
2. In certain scenarios, iFactory or industrial computers can simultaneously read real-time IoT data and guide engineers to complete tasks.
3. Natural language can be used to guide new IoT device installation and troubleshooting on equipment.
4. Azure OpenAI Service automatically generates relevant programs to establish data models for newly installed edge devices.
5. GitHub Copilot can be leveraged for generating new dashboards and codes.
6. Utilizing GitHub Copilot, engineers can generate and preserve essential technical documentation from the codes.

Scenario 3: Intelligent Machines — Proactive communication with information systems for onsite problem-solving

1. iFactory detects abnormal material conditions, indicating risks to product quality.
2. Using Azure OpenAI Service, iFactory generates descriptive prompts based on collected data and inquiries about possible responses. Engineers then suggest possible solutions such as substituting alternative inventory or expediting subsequent work orders.
3. iFactory generates SQL code through Azure OpenAI Service to query inventory information for users to initiate production with substitute materials.
4. Azure OpenAI Service translates instructions into code or calls the iFactory API to drive automated warehousing for material preparation.

Since Industry 3.0 emerged in the 1970s, manufacturing industry has significantly improved production efficiency and quality control by integrating and applying industrial equipment, computers, and information and communication products. However, utilizing these technologies has required substantial investment in human resources and time acquiring specialized knowledge for equipment installation, control, maintenance, and operation.

In 2022, OpenAI released ChatGPT to the public, enabling the widespread use of AI. In 2023, Microsoft, with its partnership with OpenAI, launched Azure OpenAI Service with enterprise security services, compliance, and guaranteed service level agreements (SLAs), facilitating the adoption of AI in various areas.

"So, to answer my initial question as to how Azure OpenAI Service can impact manufacturing, I would say that in my view, it is time for machines to learn to speak the language of humans.", said Kevin Chang.■

Footnotes:

1. https://www.mckinsey.com/capabilities/operations/our-insights/the-services-solution-for-unlocking-industrys-next-growth-opportunity
2. https://www.accenture.com/us-en/insights/technology/generative-ai

Remote Facility Monitoring & Maintenance Powered by EdgeSync 360

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One platform for managing all your edge devices and data

- 24/7 device management of all Advantech hardware
- Remote access to devices and applications anytime, anywhere
- Edge-to-cloud integration for faster project time to market
- Easy operation in either SaaS or on-premise environments
- Pay-as-you-go subscription to lower entry barriers

Authentication and instant onboarding

Real-time monitoring and remote control

OTA update

Virtual physics models

Dashboard and alarm notification

API integration

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Advantech's IoT SaaS Platform Empowers Canadian Packaging Factory with Smart Applications

Photos provided by Shutterstock
Interview with Ihen Tsai, iFactory Product Manager of Advantech

Although upgrading to smart factories is crucial for manufacturers to maintain competitiveness, many remain hesitant to make the transition due to challenges such as high costs, difficulties with IoT implementation, and the need for dedicated maintenance staff. With Advantech's WISE-IoTSuite Industrial IoT Platform, factories can now directly purchase cloud-based subscription services and utilize pre-built I.Apps that make it easier to intelligentize their work processes. The digital transformation of a Canadian packaging factory is a prime example of how the iFactory/Andon I.App can be directly implemented from Advantech's WISE-Marketplace to help intelligentize their production processes with remote assistance from Advantech's engineering team.

Adding iFactory solutions optimizes existing digital transformation efforts

The Canadian packaging factory is a multinational enterprise that provides global industrial packing services and supplies. The company is constantly promoting its digital transformation in order to optimize its services across the supply chain and maintain international competitiveness. Although it has already implemented an ERP, MES, and other systems, many deficiencies remain in their process management. Ihen Tsai, iFactory Product Manager at Advantech, elaborated that before implementing iFactory solutions, factory operators relied solely on light stacks as an indicator of equipment issues. However, this system proved inefficient when it came to identifying material shortages and their specific location for replenishment from the warehouse. Operators had to place multiple phone calls or locate relevant personnel, leading to potential delays, process inefficiencies, and reduced productivity if staff were occupied with other tasks.

Advantech's iFactory/Andon I.App effectively resolved the operational process challenges faced by the company.

According to Mr. Tsai, “By digitizing information in the operation process, the system clearly identifies what problems need to be solved in their operations, as well as where those problems are.” The Andon I.App provides comprehensive workstation reporting on production anomalies, assistance requests, key production event records (e.g., change-over and QC inspections), and ticket tracking. These features ensure timely and on-schedule production, enabling the company to address problems swiftly and maintain efficient operations.

A specific example illustrates the benefits of implementing the Andon I.App. In cases where materials, such as wood panels and cardboard, are required for packaging large items like pianos and furniture, the type and color of materials used to produce the packaging must be consistent. Normally, the wood is cut into panels and subject to further processing, and at this stage material shortages are common. This interrupts operations as staff need to contact the warehouse for replenishment. This waiting time delays the entire production process. However, with the implementation of the Andon I.App, the company has successfully reduced waiting times and minimized handling errors, leading to improved efficiency in their operations.

Achieving significant enhancements in productivity while saving on costs

The implementation of the iFactory/Andon I.App brought significant benefits to the company. Problem resolution times were reduced by up to 50%, problem frequency was reduced by almost 80%, and productivity was increased by 7%–8%. Looking ahead, the potential for cost reduction can be further enhanced by integrating Advantech’s Maintenance I.App, which assists with equipment maintenance tracking and scheduling, ensuring optimal performance and minimizing downtime.

In the past, Advantech primarily collaborated with domain-focused system integrators to assist manufactures with their IoT systems. However, Advantech has now made it possible for companies to directly purchase services from their WISE-Marketplace. Through cloud-based implementation, Advantech’s engineering team in Taiwan assisted in deploying the Andon I.App. This assistance included optimizing the user interface, providing staff training, and collaborating with Advantech PMs to define reporting requirements and management processes to realize smart factory

operations. Thanks to Advantech's efficient and professional assistance, the iFactory solution was successfully implemented in less than three months.

iFactory - the ultimate solution for smart manufacturing

In the US, a baked goods manufacturer has also adopted Advantech's iFactory Solutions, including OEE and Andon, to implement more comprehensive and smarter production management at their factory in China at the end of 2022, and their plant in Indonesia in Q1 of 2023. Furthermore, discussions are underway for future collaboration on implementing SPC. This successful adoption of Advantech's IoT subscription-based services further demonstrates their effectiveness in enabling businesses from various industries to make the transition to smart manufacturing.

Mr. Tsai emphasized the following factors for effective factory management: availability, productivity, and quality. In response, Advantech developed several iFactory I.Apps based on these factors. These include OEE, Andon, and Maintenance, which are mainly used to improve equipment availability. Additionally, Shop Floor iApp and eManual contribute to optimizing on-site operations and reporting processes, thereby improving efficiency and productivity. Lastly, there is an SPC iApp which uses statistics and AI to optimize quality. Mr. Tsai emphasized that enterprises can successively implement these I.Apps according to their needs.

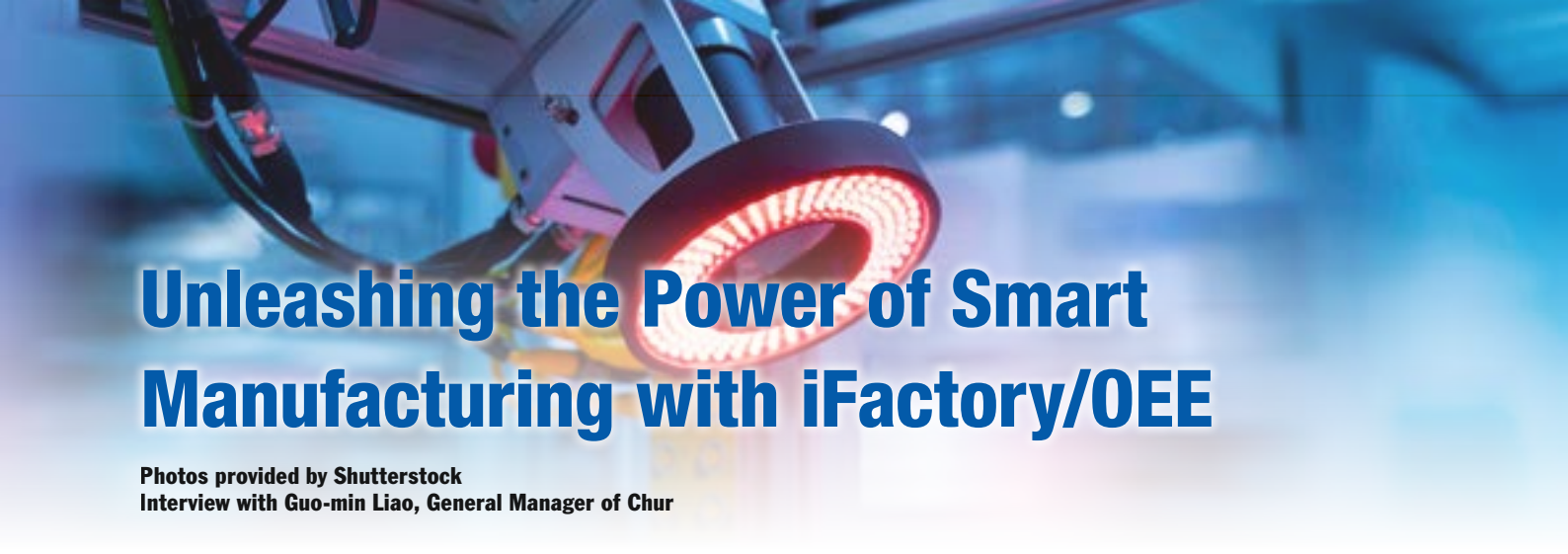
The use of cloud-based systems for IoT applications has become a widespread practice, and the implementation of IoT systems that effectively leverage cloud and edge technologies will be key for manufacturers to achieve success in the era of intelligentization. With 40 years of extensive experience in software and hardware solutions and IoT cloud services, Advantech is the ideal partner for manufacturers who are making the transition to Industry 4.0. Mr. Tsai recommends that manufacturers leverage Advantech's IoT SaaS services to advance their factory operations toward Industry 4.0. ■

Case Study Benefits

1. Reduced waiting times and handling errors.
2. Shortened operating times by 10%–20%, resulting in increased productivity.
3. Fewer problems overall, increased reliability, and reduced downtime.

Solutions and Benefits

iFactory Solutions are a suite of solutions that can help factories improve OEE, reliability, energy efficiency, productivity, and safety while reducing emissions and maintenance costs. WISE-IoTSuite and iFactory I.Apps can help connect machines and equipment to logistics systems and facilitate the direct management of WIP components, creating a real-time lean manufacturing ecosystem that is exceedingly efficient and flexible for manufacturers.



Unleashing the Power of Smart Manufacturing with iFactory/OEE

Photos provided by Shutterstock
Interview with Guo-min Liao, General Manager of Chur

In the era of Industry 4.0, smart manufacturing has emerged as a pivotal force driving global industrial transformation and an array of new opportunities. In Taiwan, the Executive Yuan has taken proactive initiatives to support the adoption of smart technologies and sustainable business models, ushering in a new era for the manufacturing sector.

However, a recent survey conducted by DIGITIMES on Taiwan's smart manufacturing landscape indicates that many manufacturers are yet to fully embrace emerging technologies. Among the various solutions, IoT solutions constitute the most widely deployed type of emerging technology, accounting for 23% of overall deployments. Big data analysis follows closely at 25%, while data visualization and digital decision-making systems stand at 27%.

Guo-min Liao, General Manager of Chur, a system integrator specializing in Industry 4.0, has shed light on the evolving perception of Industry 4.0 among customers since their partnership with Advantech began approximately seven years ago. Initially, the prevailing belief centered around the interconnectivity of machines as the core of Industry 4.0. More recently, Taiwanese manufacturers have gained a deeper understanding of digital transformation and its broader implications. In its commitment to facilitating this transformation, Chur offers Advantech iFactory solutions in areas such as Overall Equipment Effectiveness (OEE) and Environment, Health, and Safety (EHS). These solutions effectively address production, management, and sustainability challenges while paving the way for the successful implementation of Industry 4.0 principles.

Partnership harnesses expertise in digital transformation

Motivated by a digital transformation initiative mandated by its headquarters in Japan, a leading Japanese manufacturer specializing in polarizer films, transparent conductive films, optical protective films, and optical transparent adhesives sought out Chur to implement an OEE (Overall Equipment Effectiveness) solution. Recognizing the superiority and functionality of Advantech products compared to other offerings in the industry, the manufacturer held a highly positive impression of Chur's solution, which leveraged Advantech products and the expertise of their digital transformation consultant, Des Technology.

Prior to implementing the OEE solution, the manufacturer relied solely on management software to assist with production scheduling and processes. However, this approach posed challenges in obtaining real-time information on production and machine performance. The production line staff had to manually record produc-

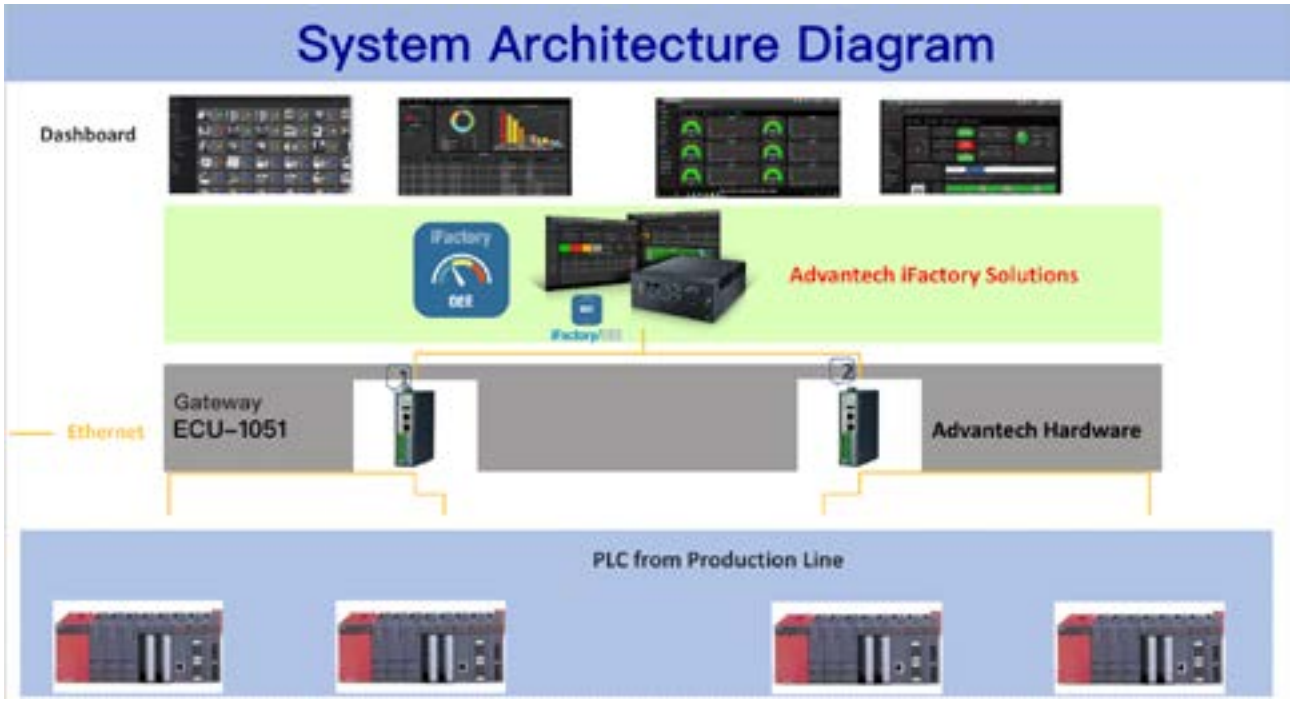
tion capacity and failure numbers, resulting in delays in reporting abnormalities to production supervisors. As a result, supervisors often received these reports too late to take corrective action, impacting production capacity and failure rates for specific batches.

In the initial phase of the project, data collection from production machines for day-to-day operations was achieved by connecting Programmable Logic Controller (PLC) units from one production line to Advantech's ECU-1051 RISC-based industrial communication gateway. This setup served as a proof of concept for data collection and conversion to the Message Queuing Telemetry Transport (MQTT) protocol. It effectively enabled the transmission of data to the iFactory/OEE system, allowing for visualization and statistical analysis applications to derive valuable insights.

Bridging the gap between the specific needs of industry and Advantech solutions transformation

Advantech has harnessed its extensive industry expertise to deliver integrated solutions that encompass computing platforms and industry-specific software applications. Their OEE and EHS solutions offer a comprehensive range of functions, fulfilling 70% of the industrial requirements. This includes features like data visualization dashboards and utilization rates. Mr. Liao, in his comments, emphasized that as an Industry 4.0 system integrator, Chur addresses the remaining 30% of the customer's needs through tailored customization and value-added services.

These services include production management consultancy from Chur's partner and the creation of customized dashboards and reports that cater to the unique requirements of the manufacturer. By leveraging Chur's flexibility in integration, Advantech products, and the expertise of Des Technology, the team provides superior services that efficiently



Case Study Benefits

1. Acilitation of connectivity between production work orders, production output, and abnormal conditions.
2. Identification of common factors contributing to abnormal situations.

Solution and Benefits

iFactory SRP (Solution Ready Package) offers system integrators the ability to leverage Advantech's vast industry knowledge in delivering integrated solutions that encompass computing platforms and industry-specific software applications. This comprehensive approach expedites project development and provides a cost-effective solution for manufacturers seeking to meet the requirements of Industry 4.0.

address genuine requirements. Other solution providers, on the other hand, would be unable to bridge the gap between domain requirements and their offerings.

In this particular project, the primary objective was to establish seamless connectivity between production work orders, production output, and abnormal conditions. For instance, consider a scenario where machine parameters require intense air pressure to generate film surface tension. But, as the equipment ages, the actual tension decreases, resulting in an increase in defect rates and broken films.

To tackle this issue, an OEE solution played a crucial role in swiftly gathering information on each batch that may encounter similar circumstances. Through Chur's tailored solution, customers can promptly identify common factors contributing to abnormal situations, enabling analysis of the root causes behind the high defect rates or factors impeding improvements in output and utilization rates. Once the system reaches a certain level of adjustment, the second phase will involve a gradual deployment across all production lines in the factory. This process will also encompass the introduction of other applications, such as iFactory/Maintenance and the Manufacturing Execution System (MES).

Mr Liao stated, "In the past, completing a project could take up to a year. However, thanks to our collaboration with Advantech and the utilization of their iFactory Solution Ready Packages, we have successfully met our customers' expectations in terms of rapid project deployment and the ability to customize solutions". Looking ahead, Chur aims to further specialize in specific industries, leveraging their expertise to provide valuable insights to Advantech. This collaboration will enable Advantech to refine their products and specifications, ensuring they are better aligned with the unique needs of specific industries. ■

Advantech PHM Assists Petrochemical Plants in Improving Machine Safety and Maintenance

Photos provided by Advantech

Numerous petrochemical plants have maintained operations for over twenty years, frequently encountering delays in essential upgrades due to the exorbitant expenses associated with machinery replacement and maintenance. Outdated equipment poses significant risks to public safety, primarily due to the heightened possibility of mechanical failures. However, in a bid to address this issue, a prominent petrochemical factory has adopted Advantech's Prognostic and Health Management (PHM) system. By implementing this embedded predictive maintenance system, the facility ensures stable production and minimizes the occurrence of incidents in their facilities with rotating machinery.

Machine safety maintenance is critical in petrochemical plants

The senior manager of a prominent petrochemical factory highlighted the wide array of machinery utilized within their facilities. This diverse range includes motors, pumps, decelerators, compressors, and blowers, each playing a crucial role in operations such as water, electricity, gas, and material supply. Maintaining and repairing these components poses a significant challenge due to the uninterrupted operations and workflow required

Addressing production and safety risks stemming from inaccurate machine maintenance is a major concern in the petrochemical industry. Advantech's iFactory provides a PHM predictive maintenance solution for facilities with rotating machinery that ensures stable production with minimal incidents, leading to efficient and safe plant operations.

- Senior Manager of a leading petrochemical factory

in petrochemical plants. Accidents involving malfunctioning pumps, compressors, or hazardous leaks can result in substantial harm to individuals, business, and the environment.

During emergency situations, maintenance personnel may face the challenge of spending critical time traveling within the facility to gather essential information. The current reliance on manual patrols and inspections is both time-consuming and subjective, relying heavily on personal experience, which in turn hinders accurate verification of normal machine functionality.

PHM is integral to business success and digital transformation.

The importance of machine safety maintenance cannot be overstated. To ensure the consistent and dependable operation of motors, pumps, compressors, and blowers, the petrochemical factory integrated a comprehensive software/hardware system developed by Advantech. This integration encompasses essential hardware components such as the WISE-2410 LoRaWAN Wireless Vibration Sensors and WISE-6610 LoRaWAN Gateways, which collectively guarantee reliable connectivity options for the facilities. The software component (I.Apps) consists of Advantech's iFactory Edge Machine Predictive Maintenance System and iFactory PHM/Rotating Machine.

The iFactory PHM/Rotating Machine solution offers an easy on-site installation path and seamlessly collects machine health status data without disrupting normal production operations. This makes it particularly well-suited for industries that rely on continuous production and cannot afford unexpected downtime. By providing real-time updates on machine conditions to on-site personnel, it enables transparent tracking of machine health trends. This proactive approach allows maintenance personnel to be better prepared, minimizing the need for repetitive patrols and manual inspections. Consequently, technicians can dedicate more time and attention to their core responsibilities, leading to increased efficiency and productivity.

An important aspect to note is that by installing wireless sensors on-site and collecting data for a period of two weeks, a highly efficient AI health model can be swiftly developed. This model possesses the ability to accurately detect early-stage degradation in machine conditions and issue timely pre-warnings. The proactive identification and resolution of potential issues play a vital role in enabling the petrochemical plant to maintain stable production, minimize downtime, and reduce maintenance expenses. With Advantech's comprehensive hardware/software solutions, a reliable and efficient approach to machine safety maintenance is made possible. These solutions facilitate corporate development and transformation within the petrochemical industry, supporting its progress and growth in a sustainable manner. ■

Case Study Benefits

1. Proactive identification and resolution of potential issues.
2. Maintenance of stable production.
3. Reduction of downtime and decreased maintenance expenses.

Crafting Customized Solutions for a Range of Manufacturing Environments Using Advantech iFactory

Photos provided by Eforel, Advantech and Shutterstock
Interview with Hanggar Cahya Kusuma, CEO of Eforel

According to the Food and Agriculture Organization (FAO) of the United Nations, one-third of global food production is lost or wasted each year. Developing countries in particular experience significant food losses throughout the production chain, with an estimated 30–40% of total production being lost before reaching the market. It is important to acknowledge that this loss also leads to the needless waste of all the energy and resources dedicated to food production.

Smart manufacturing technologies present a promising solution for optimizing food production processes in developing nations. These advanced technologies have the potential to improve efficiency, quality control, and traceability, thereby mitigating waste. Eforel, an industrial IoT specialist and one of Advantech's domain-focused system integrators (DFSI), is introducing smart manufacturing computing platforms and software applications through Advantech's iFactory Solution Ready Packages. Their aim is to drive sustainability and foster the development of efficient and resilient food systems in Indonesia.

Addressing management concerns through real-time monitoring

A multinational food products corporation, headquartered in the US with global factory locations, collaborated with Eforel, an expert in industrial IoT and a domain-focused system integrator (DFSI) of Advantech. Their partnership aimed to drive the digital transformation of a factory in Indonesia, recognizing the significant benefits of smart manufacturing in enhancing operational visibility, reducing costs, improving efficiency, and optimizing production.

One of the key concerns for the corporation was effectively managing critical aspects such as tracking machine operation times, monitoring production capacities and quality, and conducting root cause analysis for abnormalities. Mr. Hanggar Cahya Kusuma, CEO of Eforel, highlighted the challenges they faced: "Unfortunately, these tasks were being carried out manually, resulting in unexpected drawbacks. The manual production of reports led to inaccurate equipment records with frequent human errors."

During the proof-of-concept phase, Eforel proposed the adoption of Advantech's iFactory/OEE solution, which encompassed several components to achieve the corporation's objectives. Firstly, they recommended implementing the MIC-7700 compact fanless on-premises OEE server. This server enabled real-time processing of production data, equipped with intuitive management dashboards, as well as data analysis and visualization capabilities.

Secondly, ECU-1051 IoT gateways were suggested to connect the PLCs on production machines such as mixers and fillers. For machines without PLCs, like palletizers, ADAM-6051 I/O modules were proposed. Both the ECU-1051 and ADAM-6051 were seamlessly integrated into the OEE system.

To ensure reliable data transmission throughout the site, multiple EKI-6333AC wireless access points were installed, ensuring stable connectivity. These devices simplified the installation process as they eliminated the need for extensive cabling or modifications to the machines. Additionally, Eforel supplied dedicated tablets equipped with customized user-friendly software specifically designed for collecting maintenance data from the machine's CAN interface.

OEE solution reduces downtimes, decreases material waste, and increases ROI

Overcoming the challenge of integrating multiple PLC and sensor protocols has always been a significant hurdle in factory upgrades and digitalization endeavors. Nevertheless, Advantech offers solutions that facilitate seamless connectivity across diverse machines. To meet the food corporation's specific raw material requirements, Eforel capitalized on the iFactory open architecture and no-code development

Case Study Benefits

1. Improved production visibility and efficiency.
2. Identification of the root causes of downtimes and machine errors.
3. Shortened maintenance times and increased utilization rates.

Solution and Benefits

Advantech's iFactory incorporates an intuitive no-code development environment that simplifies the creation of applications. This revolutionary approach eliminates the requirement for extensive programming knowledge, empowering system integrators to concentrate on delivering exceptional results and surpassing manufacturers' expectations.

environment to customize applications tailored to their precise needs.

The implementation of Advantech's iFactory/OEE solution by Eforel received high praise from the food corporation. Real-time data acquisition and analysis provided accurate records of uptime, downtime, production quantity, and machine errors. This valuable information was presented through intuitive dashboards, enabling management to promptly take corrective actions when necessary. As a result, the solution significantly reduced the waste of raw materials, water, and energy previously caused by machine errors. Service reports further empowered supervisors to identify the root causes of machine errors, reduce maintenance times, enhance utilization rates, pinpoint production bottlenecks, devise preventive strategies, and ultimately maximize ROI.

Building upon the success of a proof-of-concept involving 20 machines, the food corporation plans to expand the deployment of iFactory OEE and Statistical Process Control to other types of machinery in the factory. This broader implementation aims to provide enhanced production visibility, improved efficiency, optimized resource utilization, refined standard operating procedures, and strengthened quality control.

Looking towards the future, Mr. Hanggar Cahya Kusuma, the innovative visionary driving this project, envisions embarking on numerous benchmark projects across diverse manufacturing scenarios. Eforel has already accumulated an extensive collection of statistical data from past projects, demonstrating impressive improvements in quality, performance, ROI, and other key metrics. To meet the unique demands of each scenario, Mr. Kusuma plans to develop industry-specific software packages rooted in iFactory. This strategic approach is expected to further enhance Eforel's reputation among international manufacturers operating in Indonesia. ■

Integral System Drives Enhancements in Equipment and Facility Management for French Factories

Photos provided by Integral System and Advantech
Interview with Vincent Gache, CEO of Integral System

In spite of the progress made in smart manufacturing during the previous decade, manufacturers in France are still facing significant challenges when it comes to the adoption of intelligent solutions. A key challenge they encounter is the aging infrastructure, which demands frequent maintenance and repairs to minimize downtime and sustain productivity.

To overcome these challenges, Integral System and Advantech have established a strong partnership, working closely together. Through the utilization of Advantech's IoT hardware portfolio and their modular, low-code/no-code software approach, this collaboration is enabling factories to construct sustainable industrial information systems.

Strong partnership for smart factory innovation

With a rich history spanning two decades, Integral System has established itself as a prominent distributor of industrial computing solutions in France. Their focus lies in delivering personalized, sustainable, and high-quality solutions to their clientele. Since 2006, they have maintained a valuable partnership with Advantech, which has enabled them to offer even more effective solutions to their customers. Recognizing the strength of this collaboration, Integral System became an Advantech Premier Partner in 2021, and a WISE-IoT VIP partner in 2023. Looking ahead, the two companies have ambitious plans to deepen their cooperation by jointly creating smart factory solutions and making them available to their network of system integrators.

Vincent Gache, CEO of Integral System emphasized, “Advantech’s position as a global leader in industrial computing solutions is strategic for our core business.” He highlighted the significance of Advantech's expertise in Industry 4.0 digitalization strategy, particularly in the face of the increasing adoption of IIoT devices, data analytics, and AI technologies aimed at real-time monitoring and maintenance of industrial assets. The shift from reactive to proactive management is a crucial step for factories to minimize unplanned downtime and equipment failures, and it is through this transformation that French manufacturers are making notable progress in their smart factory endeavors.

Highly effective solution for improving equipment maintenance

Advantech's iFactory/Maintenance and iFactory/PHM I.Apps offer highly effective solutions for factories. Expanding on these solutions, Mr. Gache emphasized

Advantech's expertise in Industry 4.0 digitalization strategy and its position as a global leader in industrial computing solutions are strategically important for our core business.

- Vincent Gache, CEO of Integral System

Solution and Benefits

iFactory/PHM proactively monitors machine health and predicts malfunctions, leading to improved uptime while reducing costs and extending the lifespan of equipment.

iFactory/Maintenance improves maintenance efficiency and reduces costs by providing real-time machine status information, preventive maintenance notifications, and automated scheduling, thus minimizing unplanned downtime while maximizing operational efficiency and ROI.

the three progressive steps involved in maintaining critical assets: scheduled maintenance activities, proactive defect elimination, and predictive maintenance for future reliability forecasting.

Mr. Gache highlighted the crucial role of motors in the smooth functioning of production lines. He emphasized that the first step in scheduling regular maintenance is to ensure optimal motor performance. By integrating iFactory/Maintenance with iMobile Services applications, administrators can conveniently access all dashboards on their mobile phones. This enables them to easily plan equipment maintenance tours and coordinate tasks with field teams.

The second step towards implementing a proactive maintenance strategy with iFactory/Maintenance involves establishing data collection points to measure motor usage intensity. This enables maintenance schedules to be adjusted based on the most up-to-date data, ensuring timely actions are taken.

The third step in achieving predictive maintenance entails the installation of sensors such as Advantech's WISE-2410 LoRaWAN Wireless Vibration Sensor. These sensors transfer motor data to iFactory/PHM, where Advantech's pre-trained AI models come into play to help prevent issues. Furthermore, each step of the process can trigger alert notifications to the maintenance teams, optimizing reaction times and improving information flow within the factories.

Predictive maintenance empowers factories to optimize their maintenance schedules, reduce costs, and enhance the reliability of critical assets. Leveraging Integral System's experience in industrial computing hardware and software engineering, in conjunction with Advantech's comprehensive hardware, software, solutions, and cloud platform services for smart factories, personalized and sustainable maintenance solutions can quickly be created. ■

Advancing Automotive Leaf Spring Production Through Smart Manufacturing

Photos provided by TECHPRO
Interview with Nguyen Dinh Hiep, CEO of TECHPRO

In the world of automotive manufacturing, precision and efficiency are paramount. The presence of complex bills of materials (BOM) and multi-step assembly processes means that the absence of even a single part or material can halt the entire production line. To tackle this challenge, automotive manufacturers have embraced lean manufacturing systems, enhanced by manufacturing automation and industrial computing, with the goal of eliminating waste and optimizing production processes. An exemplary instance of this is the partnership between THACO INDUSTRIES, TECHPRO, and Advantech for their recent digital transformation project in the automotive leaf spring manufacturing industry.

Bridging the gap between IT and OT

The automotive industry has experienced a significant revolution through automation, but the emergence of smart factories takes this revolution to a higher level. Although robots are highly efficient in performing repetitive tasks, their rigid nature and lack of flexibility create isolated systems within the factory. This poses a challenge for factories that engage in mechanical processing on their journey toward smart manufacturing, as they need to bridge the gap between information technology (IT) and operational technology (OT) by enhancing connectivity.

In order to address this challenge in the THACO INDUSTRIES project, TECHPRO and Advantech collaborated to provide a range of solutions. These included IoT sensors, gateways, and edge devices for data acquisition, as well as MES, OEE, and FEMS solutions for production management, data visualization and analysis. They also provided industrial monitors, tablets, and embedded computers for the workstations. By harnessing the power of IoT, automation, and predictive analytics, TECHPRO seamlessly integrates and harmonizes the various elements of

leaf spring manufacturing through their tailored customization services.

Advantech's iFactory/OEE solution provides real-time monitoring and a visual representation of the production equipment, enabling a comprehensive view of day-to-day operations through an intuitive dashboard. In response to THACO INDUSTRIES' unique requirements, TECHPRO developed OEE formulas tailored to each production stage and designed customized data visualization solutions for their mechanical processing factory.

Additionally, Advantech's iFactory/FEMS solution, utilizing real-time data from sensors and edge devices, enabled the factory to monitor electricity and gas consumption information for energy management. Nguyen Dinh Hiep, CEO of TECHPRO, pointed out that iFactory/FEMS seamlessly integrates with the TECHPRO-MES solution. This integration allows accurate evaluation of energy consumption for each work order, optimizing production costs and facilitating planning processes.

During project implementation, THACO INDUSTRIES conducted a thorough review of the leaf spring production process. As a result, they collaborated with the factory to streamline the process, reducing it from 13 steps to 10 steps. The simplification brought about several beneficial results, such as enhanced production efficiency, reduced workload, and the establishment of a more streamlined data flow. Furthermore, it facilitated smarter presentation of information, ultimately bolstering the overall effectiveness of the production process.

Transformation to a data-driven smart factory

After project implementation, the integration of IT and OT raised the automation rate from 25% to 82%. Furthermore, productivity increased from 6,000 tons in 2018, to 9,000 tons in 2020. Mr. Nguyen Dinh Hiep stated, “The factory's management team informed us

iFactory/FEMS is integrated with the TECHPRO-MES solution so that the energy consumption of each work order can be accurately evaluated for optimizing the production cost and planning.

- Nguyen Dinh Hiep, CEO of TECHPRO

that not only did the number of employees required for each shift decrease but the production of leaf springs also increased whilst production costs were reduced."

Furthermore, the digitalization of the quality control process and equipment maintenance played a vital role in the project's success. By accessing digital reports through TECHPRO-MES, the need for manual entry of production and maintenance information was eliminated. This streamlined data collection, saving time and reducing the risk of data omissions. Additionally, the OEE real-time data dashboard is accessible from both the situation room and the workstation, providing the factory with meaningful insights into equipment utilization, production performance, and product quality. Moreover, it facilitates predictive maintenance, alerting workers to address equipment issues before they escalate into costly breakdowns.

Through the collaborative efforts of TECHPRO and Advantech, THACO INDUSTRIES has successfully transitioned into a smart factory. This comprehensive solution harmonizes data-driven decision making, real-time monitoring, and intelligent automation, creating a seamless synergy. By implementing this innovative solution, THACO INDUSTRIES can unlock the full potential of their production lines, resulting in unprecedented levels of efficiency, quality, and profitability. ■

Case Study Benefits

- Meaningful insights into equipment utilization
- Real-time monitoring of production capacity and quality
- Optimized production planning and material management
- Product traceability

Autotech and Advantech Empower Vietnamese Factories in Advancing Smart Manufacturing

Photos provided by Autotech
Interview with Joseph Tsao, Business Development Manager of Autotech

As costs in China's manufacturing industry continue to rise, more factories are choosing to transfer their production lines to Vietnam to capitalize on the country's low-cost labor and favorable trade policies. However, smart factory development in Vietnam is still in its infancy, with many factories lacking even basic machine connectivity, let alone the ability to utilize data analysis and AI to improve their efficiency and quality. Autotech and Advantech are now providing comprehensive software- and hardware-integrated solutions to help Vietnamese manufacturers move toward intelligentization and enhance their competitiveness while creating added value.

Collaboration for industrial advancement

Vietnam Autotech Machinery Joint Stock Company, also known as the Autotech Vietnam Company, is renowned for their specialization in designing and manufacturing auxiliary automation systems for industrial applications. Currently, 60% of the company's customers are in the electronics industry, while the remaining 40% are from automotive and its supporting tiers. In addition to serving customers in Vietnam, Autotech also exports its products to markets such as India and Mexico.

Founded in 2013, the company has grown from a small workshop in Hanoi to now employing over 200 staff. In 2016, the company became a Tier 1 supplier for Samsung Display Vietnam. With its proactive approach in constantly seizing new opportunities, the Autotech Vietnam Company is one of the most respected pioneers in the field of machine automation and solutions.

In recent years, industries have tended to focus on connectivity to integrate vertically with their overall production systems. Autotech are actively promoting a software value-added strategy, which involves integrating software or applications into their existing hardware products.

Joseph Tsao, Business Development Manager at Autotech, pointed out that in implementing this strategy, they found that Advantech's WISE-iFactory was ideal because it could be quickly integrated into Autotech's machinery. It was because of this that the two companies decided to cooperate.

In their first collaboration, Autotech applied Advantech's WISE-iFactory/OEE I.App into their machinery to help a Taiwanese casting customer automate their production line. Mr. Tsao explained that the customer originally only set up in China, but rising energy costs resulted in them shifting part of their production to Vietnam. With WISE-iFactory/OEE now implemented at their new factory in Vietnam, they can easily view real-time equipment status information via a dashboard. This provides an overview of the factory's on-site production information and performance indicators to enable better decisions on optimizing productivity. The solution has also helped the customer to optimize management by improving equipment utilization rates (OEE) or monitoring equipment energy consumption.

Seamless integration of machinery equipment through OT–IT collaboration

Mr. Tsao explained, "Achieving a successful integration of machinery and IoT solutions necessitates a seamless setup of operational technology (OT) and information technology (IT). With Advantech's establishment in Vietnam, they can now assign Vietnamese IT engineers to collaborate with Autotech's OT engineers, ensuring the smooth and prompt completion of projects."

With the increasing importance of optimizing overall equipment effectiveness (OEE), alongside the growing number of regulations and standards being implemented in various countries, the outlook for manufacturing is that costs will continue to rise. In the future, Vietnamese manufacturers will have a greater demand for advanced systems that can enhance machine OEE. Autotech and Advantech will maintain their collaboration in this domain, aiming to assist Vietnamese manufacturers in enhancing their competitiveness. Together, they will devise effective strategies for improving machine OEE. Their joint efforts will empower manufacturers to optimize their operations, reduce energy consumption, and contribute to environmental sustainability. ■

With Advantech's establishment in Vietnam, they can now assign Vietnamese IT engineers to collaborate with Autotech's OT engineers, ensuring the smooth and prompt completion of projects.

- Joseph Tsao, Business Development Manager at Autotech

The WISE-IoT Partner Program: Unleash the Potential of WISE-iFactory Solutions with Advantech

Photos provided by Advantech

Advantech, a leading player in various vertical markets for four decades, is seeking local partners to be part of its dynamic WISE-iFactory partner ecosystem. By becoming a part of the WISE-IoT Partner Program, partners gain access to a wealth of resources available on Advantech's WISE-Marketplace, as well as exclusive partner pricing for WISE-iFactory solutions. Moreover, partners benefit from enhanced online visibility, opportunities to co-host online/offline events, collaboration at world-leading expos, and the potential to receive sales leads specific to their respective regions.

Advantech understands the significance of a robust service network and has therefore established a global presence through direct branch offices and local partners. This extensive network enables end-customers to receive immediate and personalized services infused with local insight. By harnessing the power of Advantech's industry-leading products and technologies, along with the domain expertise and technical capabilities of its partners, a global WISE-Marketplace has been established. This marketplace serves as a centralized hub to consolidate ecosystem resources, allowing partners to optimize their commercial interests and maximize their potential.

Advantech greatly values the expertise of its partners, which plays a crucial role in driving Advantech's technological advancements and business growth. With a strong commitment to its partners, Advantech provides extensive technical and sales support and continuously improves its product range. Through the WISE-IoT Partner Program, Advantech aims to foster a win-win ecosystem for industrial app development and channel promotion.

Join the WISE-IoT Partner Program today and grow alongside Advantech. Together, we can drive innovation, create value, and meet the evolving needs of the smart manufacturing industry.■

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