

NOV. 16TH, 2022

AI to improve efficiency and uptime at Schneider Electric

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AVEVA



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Schneider Electric provides energy and automation digital solutions for efficiency and sustainability

Key figures for 2021

5% of revenues devoted to R&D

€29 billion

2021 revenues

43%

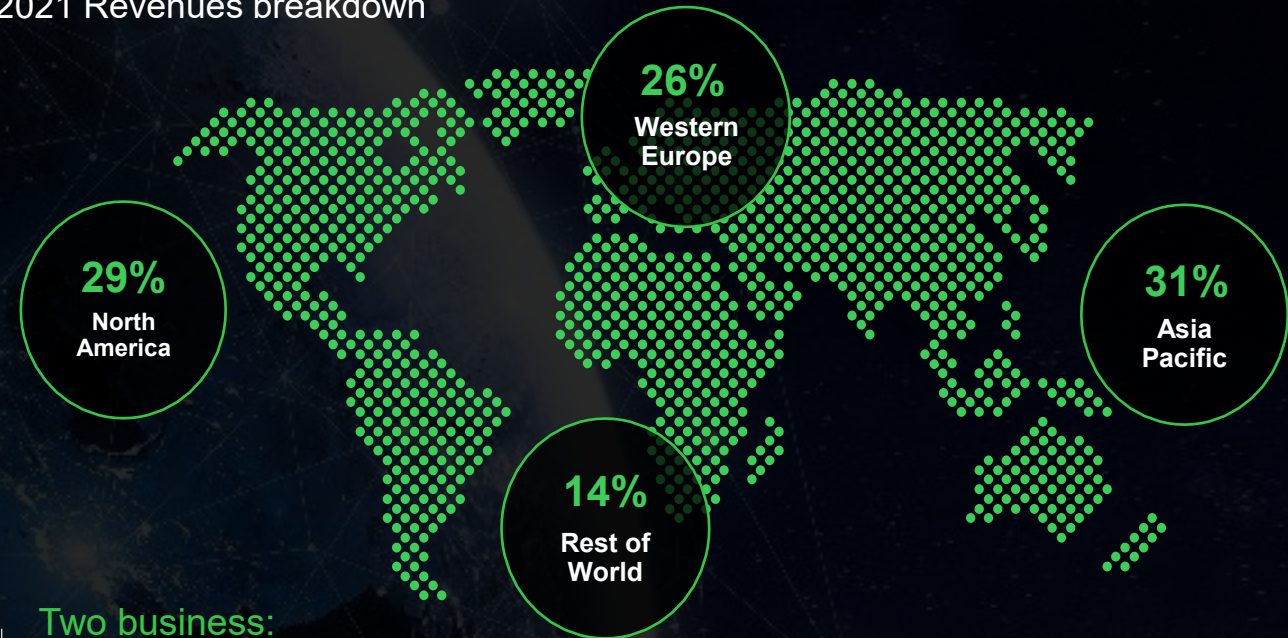
of revenues in new economies

128,000+

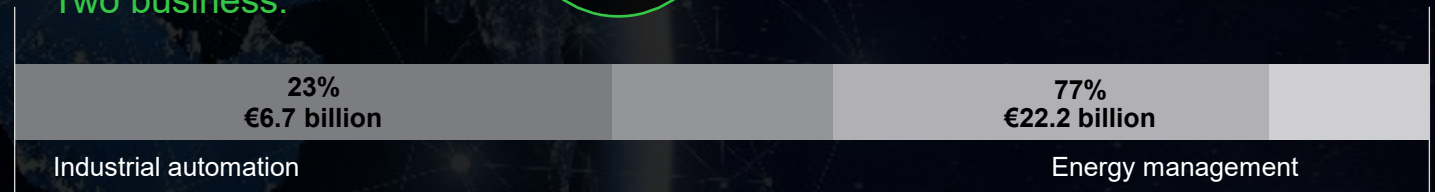
Employees in over 100 countries

A well-balanced global presence

2021 Revenues breakdown



Two business:



Global Supply Chain

A key differentiator for Schneider Electric

**ONE GLOBAL
SUPPLY CHAIN**

**WORLD CLASS
COMPETENCIES
AND TALENTS**

**CULTURE OF
CONTINUOUS
IMPROVEMENT**

2022 GARTNER SUPPLY CHAIN



**Schneider Electric
ranked NO. 2
in Global**

World Economic Forum . I 4.0



France, USA, Indonesia, Mexico, China, India
5 Advanced Lighthouse
2 Developing Lighthouse
2 Sustainability Lighthouse

Life Is On

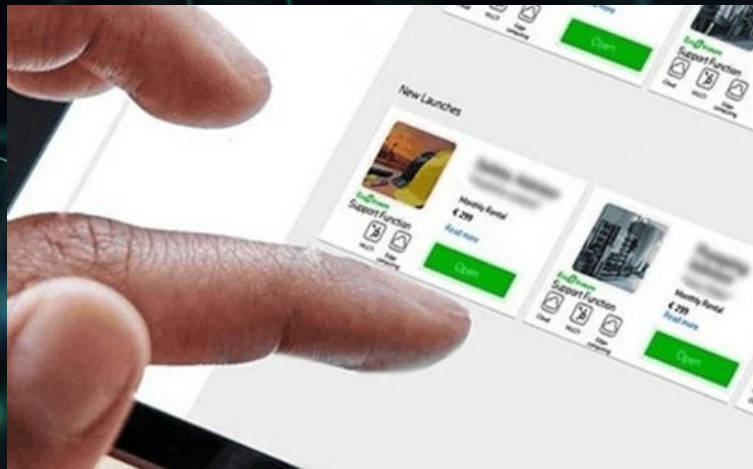
Schneider
Electric

What Smart Factory means to Schneider Electric



Efficiency and reliability

Optimizing end-to-end efficiency and asset reliability using EcoStruxure™ for Industry



Innovation

Integrating innovative technologies, IT solutions, and data analytics into our manufacturing operations



Availability

Opening our smart factories to customer visits to showcase EcoStruxure for Industry

“Empowering people with DATA for real-time, accurate decision making”

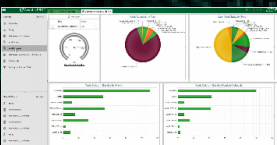
Smart Factory Tools



EcoStruxure Resource Advisor
Energy and sustainability data visibility



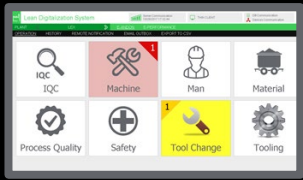
EcoStruxure Power Monitoring Expert or Facility Expert*
Energy optimization
* for sites >1GWh/yr



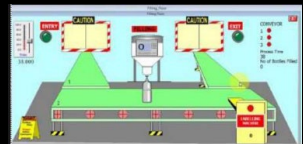
Maintenance AVEVA Enterprise Asset Management (EAM)

EcoStruxure Power Advisor
Performance and power reliability

AVEVA Lean Digitization System (LDS)
Performance, Andon, work order, Kanban, work instructions



AVEVA Process Management System – AVEVA System Platform



AVEVA Insight From IIoT to analytics



Augmented Operator Advisor
Maintenance and settings with in-hand information.



Smart Factory and Distribution Center

A deployment plan that allows us to think big, act small, and scale fast

Fast scaling

Journey so far...

2017	2019	2022
0 smart factories <ul style="list-style-type: none">Validating solutions and started to build 11 showcases	77 smart factories 10 smart distribution centers <ul style="list-style-type: none">Proven result on ROIRemote expertise	200+ smart factories and distribution centers <ul style="list-style-type: none">Focus on adoption of core digital toolsProliferation of Intelligent VisionAnalytics platforming with AI optimizationSmart automation

Energy efficiency: Average -30% cost saving

Productivity: 25-30% Capex & Opex reduction, 22% equipment availability

Reliability: Average 15% quality issue reductions

Safety: Average 20% workforce safety improvements

Sustainability: Average 20% CO₂ footprint reduction

Collaborated with customers, partners, sales, supply chain

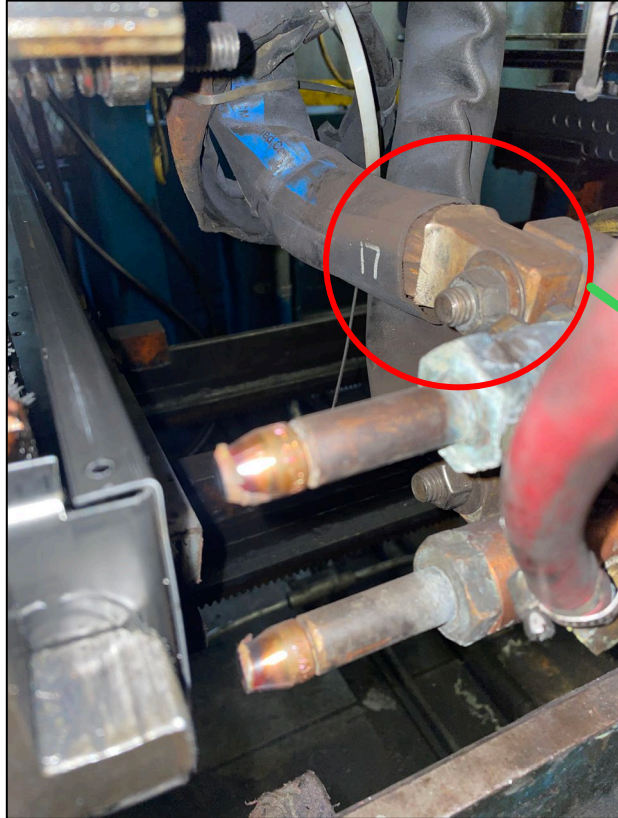
AVEVA & Schneider Electric solutions form the core of our smart ecosystem solutions along with 3rd party solutions



7 smart factories recognized

- 5 Advanced Lighthouse (France, USA, Indonesia, China, India),
- 2 Sustainability Lighthouse (USA, France)
- 2 Developing Lighthouse (Mexico, China)

AVEVA Insight Guided Analytics – Lexington, KY – The Challenge



Automated Resistance Welding Uptime

- **1500 MCM** weld cable
- **18** spot welds per product
- **10s** cycle time per product
- Flexing / twisting each cycle
 - EMF force
 - Mechanical movement
- Cable failure - Bad weld quality
- Difficult detection
 - Weld current varies by metal type and coatings
 - Failing cable can produce good welds
 - Cycle based maintenance expensive

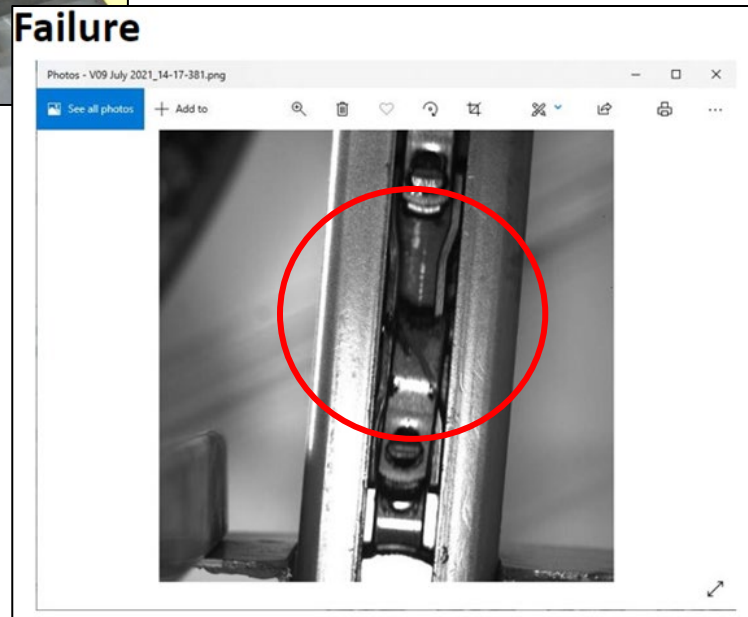
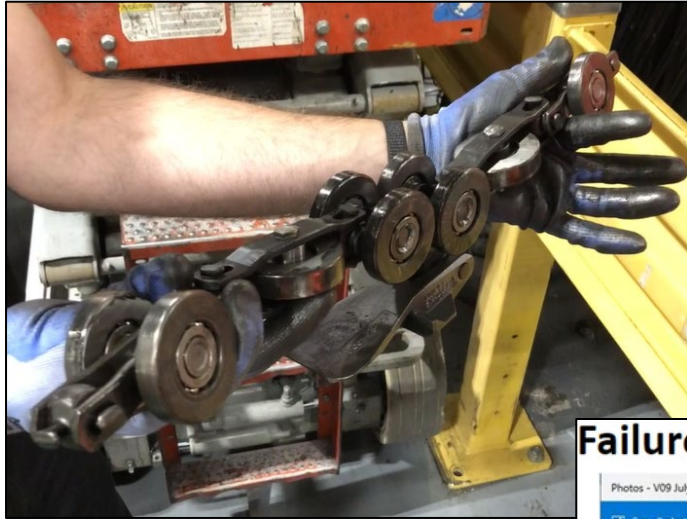
AVEVA Insight Guided Analytics– Lexington, KY – The Solution



Pending Failures

- **Time stamped data – AVEVA Insight**
 - Multiple cable junction temperatures
- **AVEVA Insight – Guided Analytics**
 - 3 months “normal”
 - Models trained / deployed
- **Reaction**
 - Anomaly score visualization
 - Threshold notification
 - Push notification via mobile app
- **Results**
 - Multiple “catches” to date.
 - 18 hours of unplanned downtime eliminated annually
 - Scaling 50 models – NA - 2022

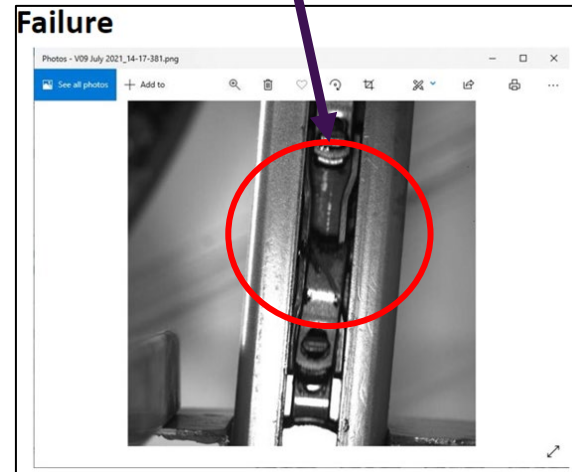
Vision AI Assistant – Lexington, KY – The Challenge



Power and Free style conveyor chain for material movement

- **7,000+** parts in transit from fab, through paint, to assembly
- **1 mile** + chain
- **60** foot-per-minute speed
- Link damage difficult to detect
- Enclosed track
- Sporadic continued jams and downtime
- Critical to plant-wide operation

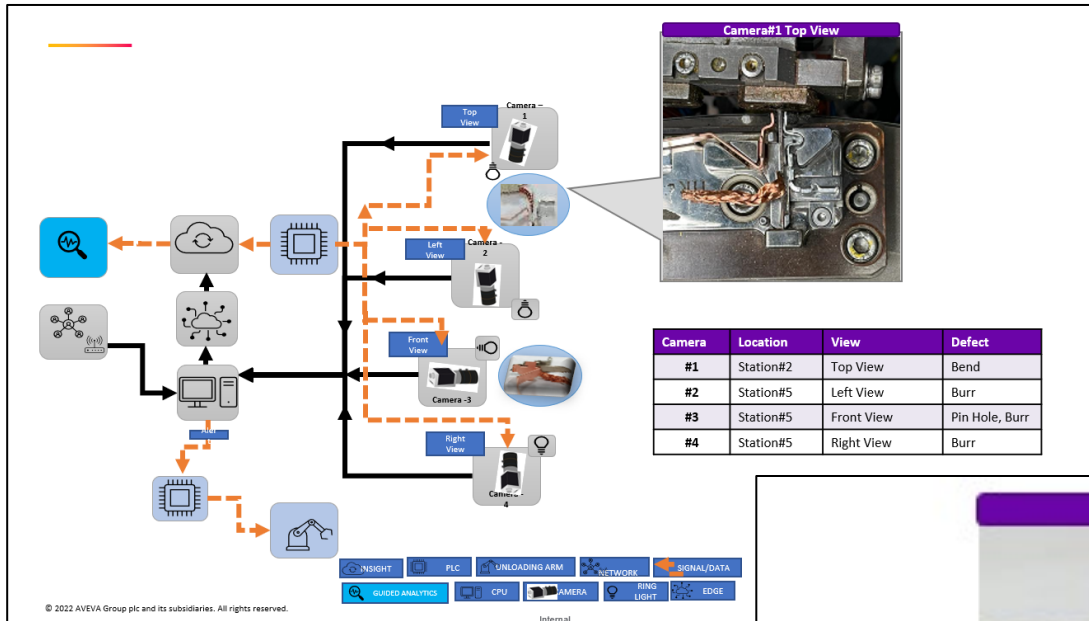
Vision AI Assistant – Lexington, KY – The Solution



Failure Detection

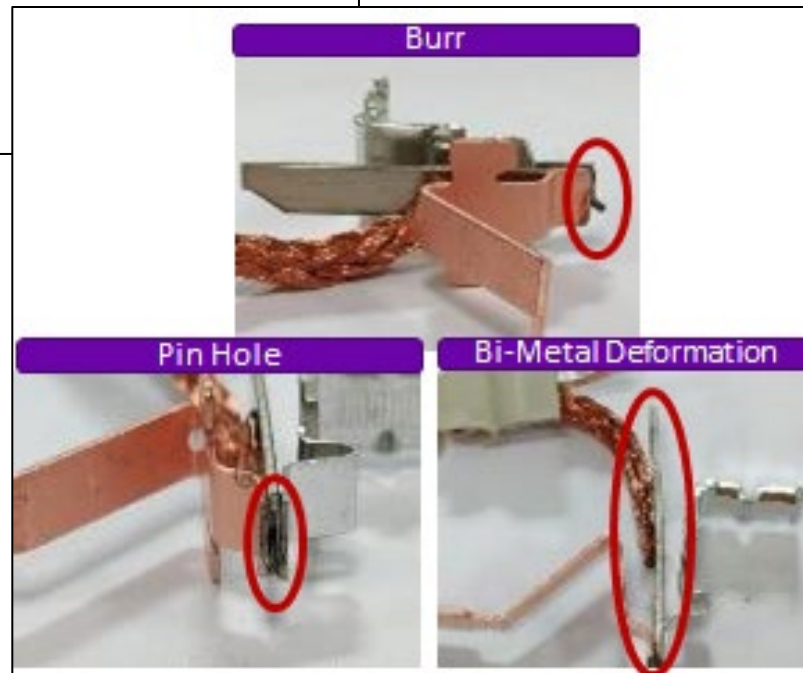
- **High resolution images captured**
 - Individual links – real time
- **Vision AI Assistant Deep Learning**
 - 17,000 images captured
 - Model trained / deployed – real time
- **Integration to AVEVA Insight**
 - Anomaly score visualization
 - Threshold notification
 - News Feed image for review
 - Nightly Maintenance Review
- **Results**
 - 3 Confirmed “Catches” 2022 - Aug
 - \$120k plant-wide downtime eliminated annually

Vision AI Assistant – Ongoing



Learned Correlation POC

- **Critical To Process (CTP) – AVEVA Insight**
 - Force
 - Temperature
 - Current
 - Displacement
- **Vision AI Assistant Deep Learning**
 - Process results
 - Real-time image models
- **Correlation?**
 - Predict specific defects based on real-time, CTP data.

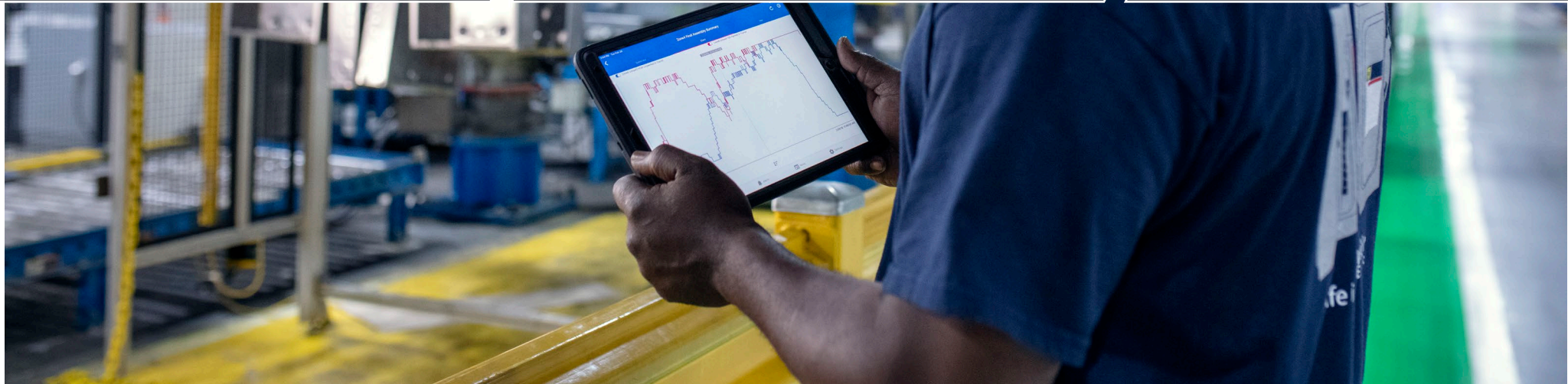




Digital Transformation

Empowered People

Resiliency



Questions?

Please wait for the microphone.
State your name and company.



Please remember to...

Navigate to this session in the mobile app to complete the survey.



Thank you!