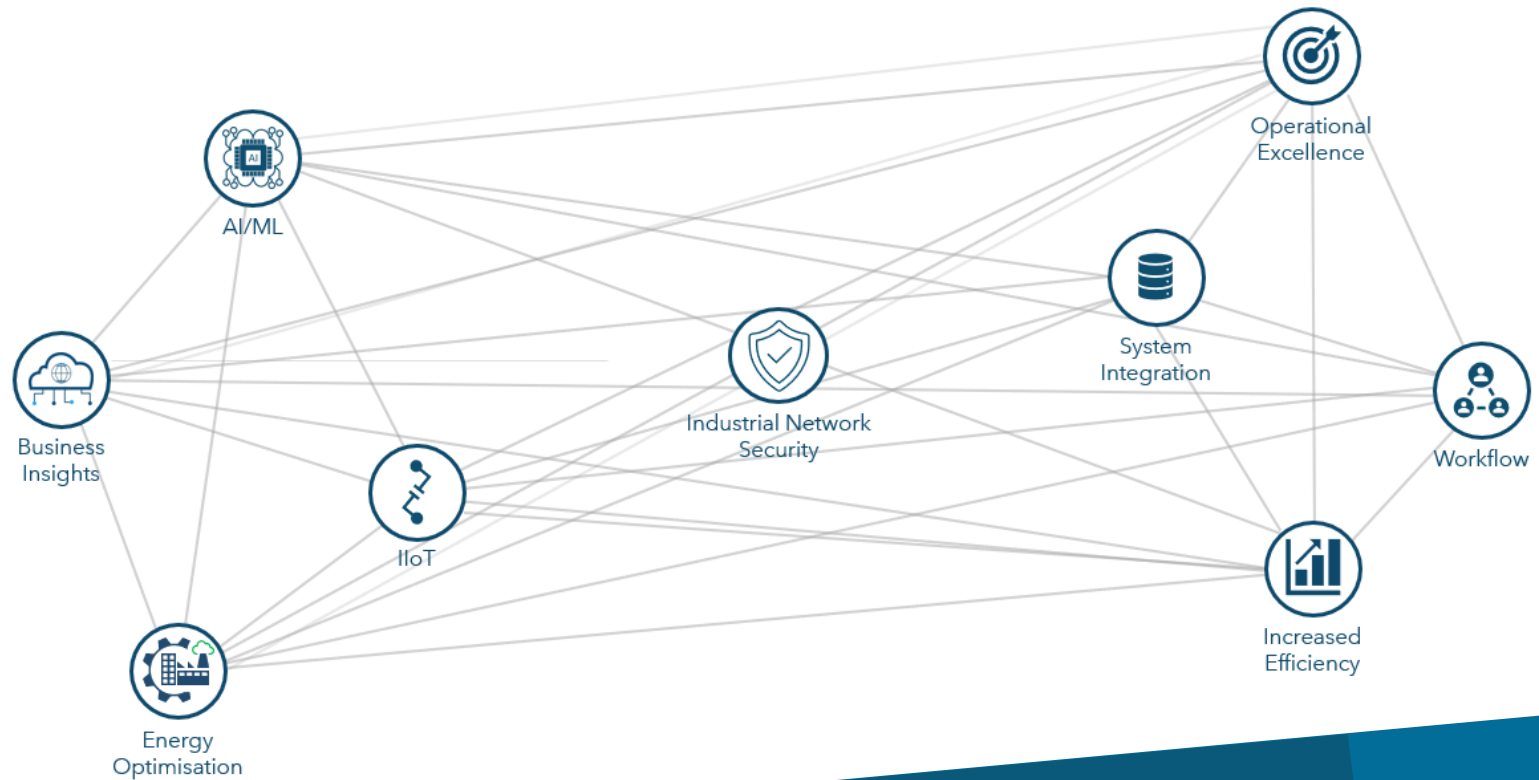


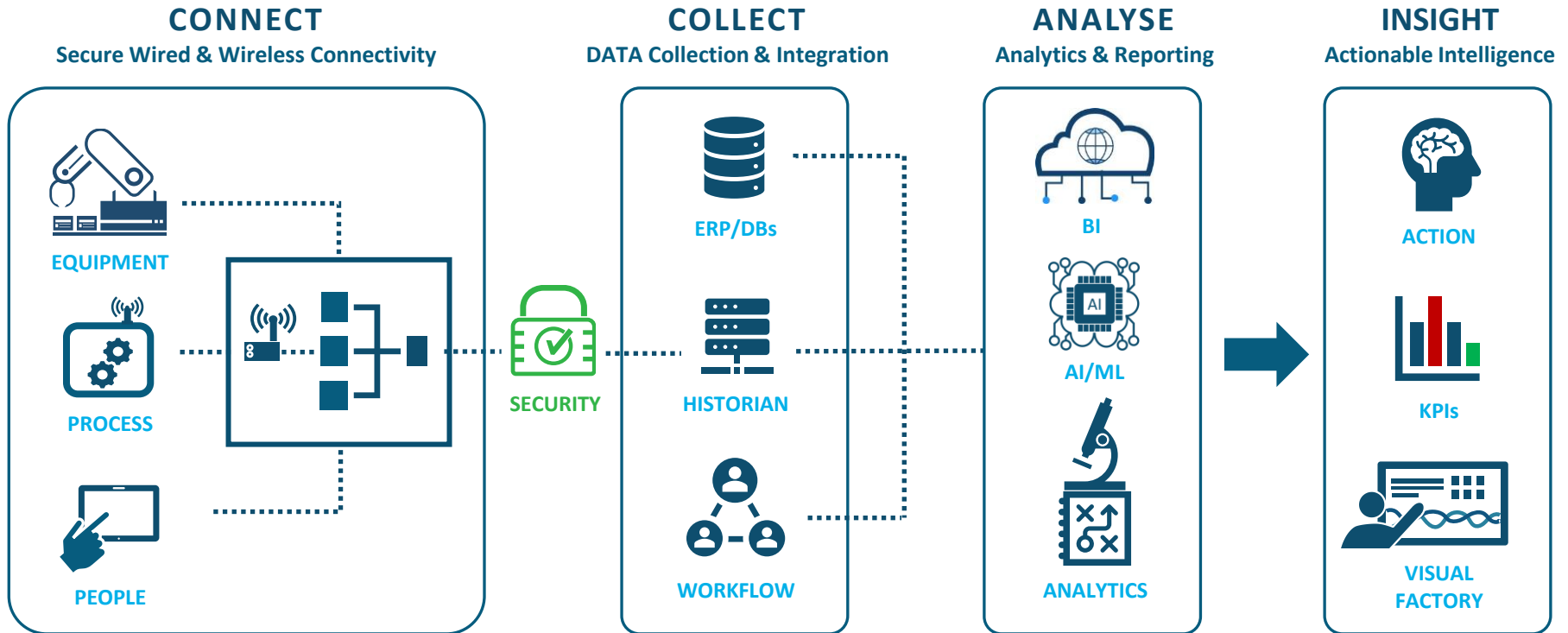
SMARTFACTORY

EFFICIENCY THROUGH INNOVATION



**Standardised Network Architecture
and
Sensor Connectivity**

Smart Manufacturing Platform



- IIoT platform that accelerates digital transformation for manufacturing companies and maximises business value
- Enables real-time, data-based decision-making, to drive operational excellence across all levels of an organisation
- The scalable, turn-key platform can be securely integrated into existing enterprise systems and can be rapidly deployed with minimum disruption

Overview:

- The Work Area Performance System (WAPS) from SmartFactory includes takt and downtime analysis, digital workflows, energy-monitoring, real-time visualisation, advanced analytics and reporting.
- The solution uses a combination of wired connectivity and wireless sensors to gather data from PLC controlled machines and manual workstations and records them as time-stamped events in a Historian.
- The Manumatic Data Entry (MDES) application prompts operators to enter reasons for downtime, variances to targets and scrap or waste, to provide deeper insights to the production performance.
- The solution is built on a standard architecture and is designed to meet the highest industrial networking and cybersecurity standards. It also includes options for secure remote connectivity.
- The system is modular and scalable – additional machines, workstations, flow-meters, sensors, etc. can easily be added in the future and the WAPS App can be updated to add more dashboards as required.
- The system includes standard KPI's for measuring performance including OEE, Performance, Target vs Actual (Variance), MTTR, Energy, etc.



Operational
Excellence



Business
Insights



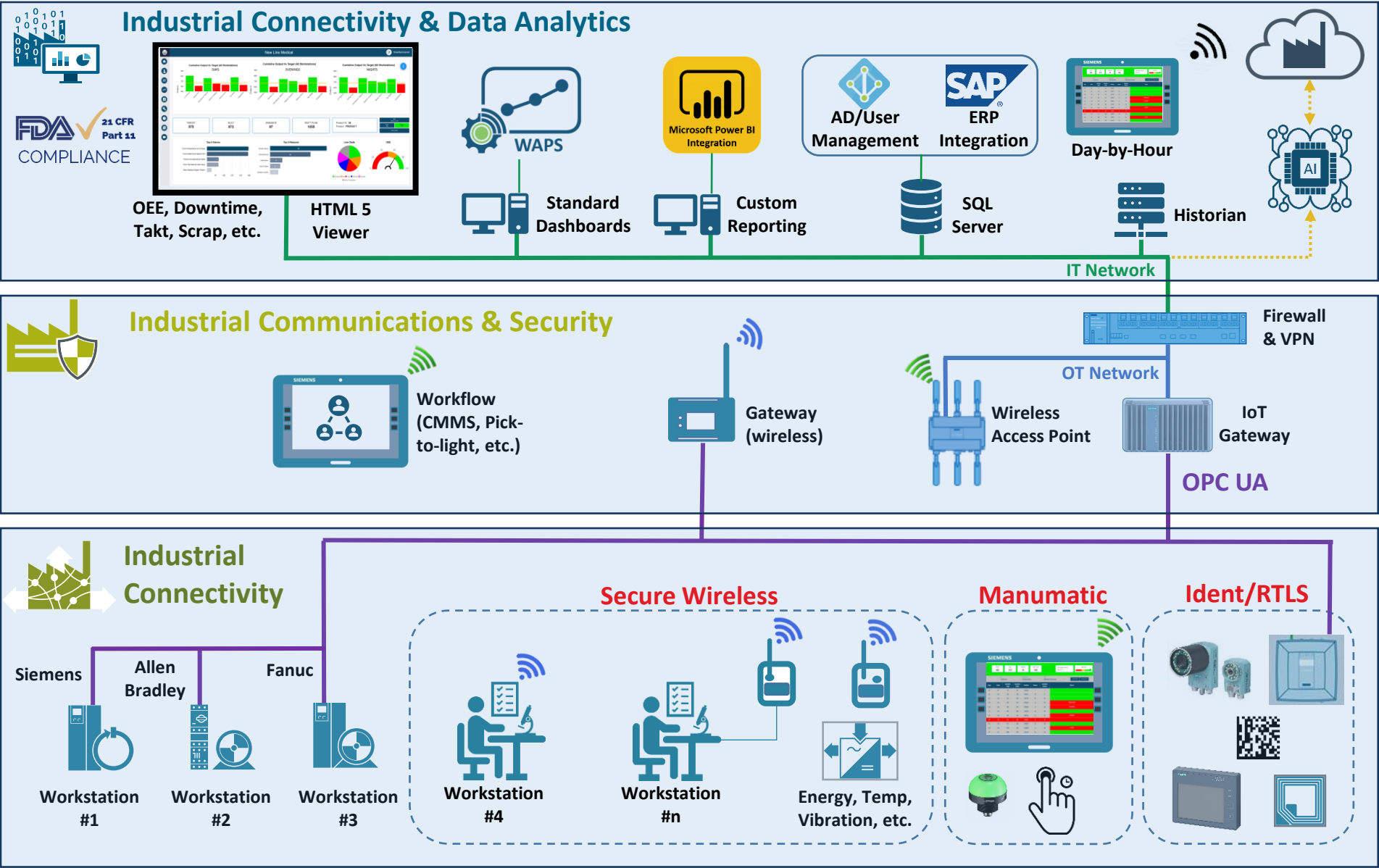
IIoT



Increase
Efficiency

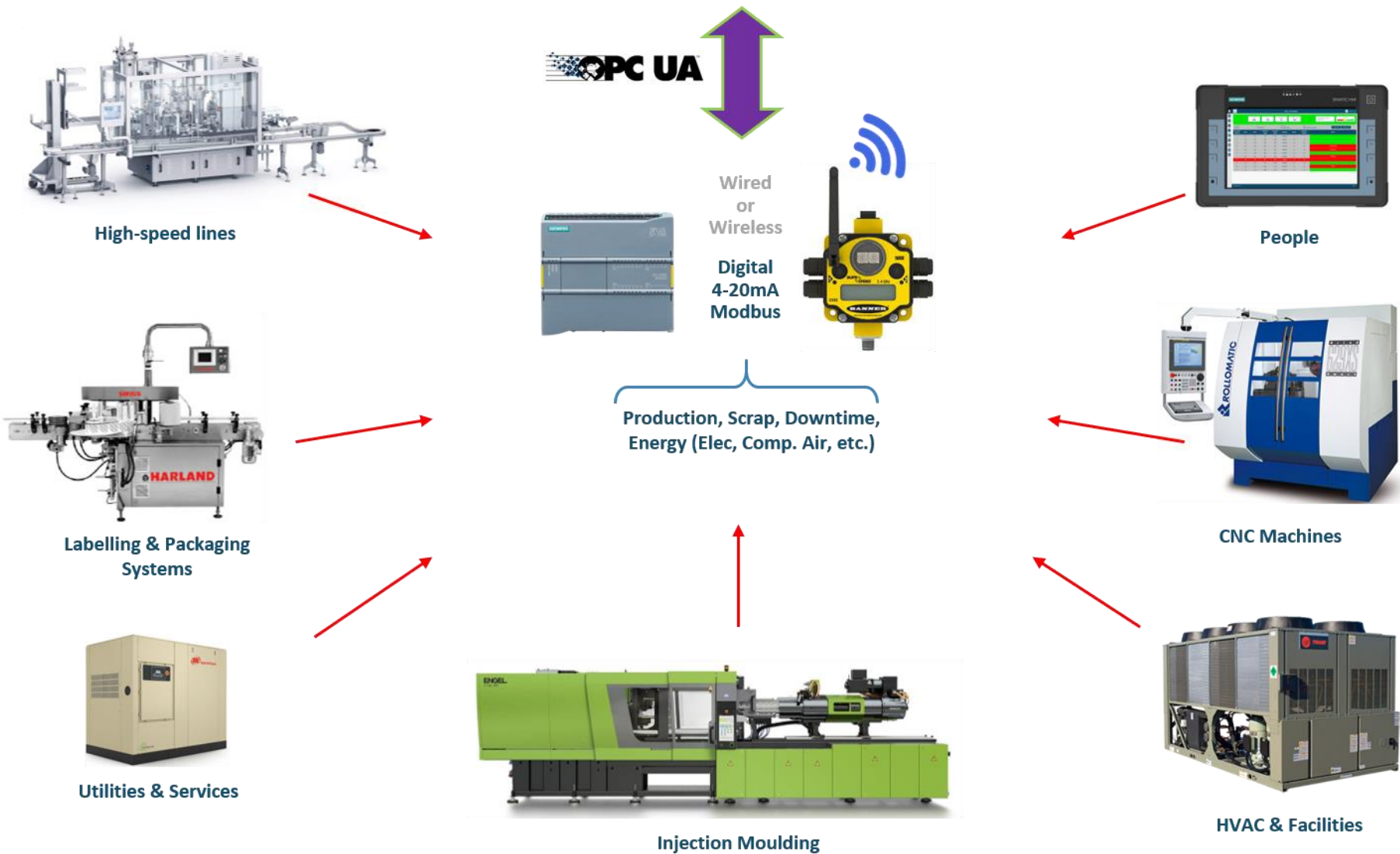


Energy
Optimisation

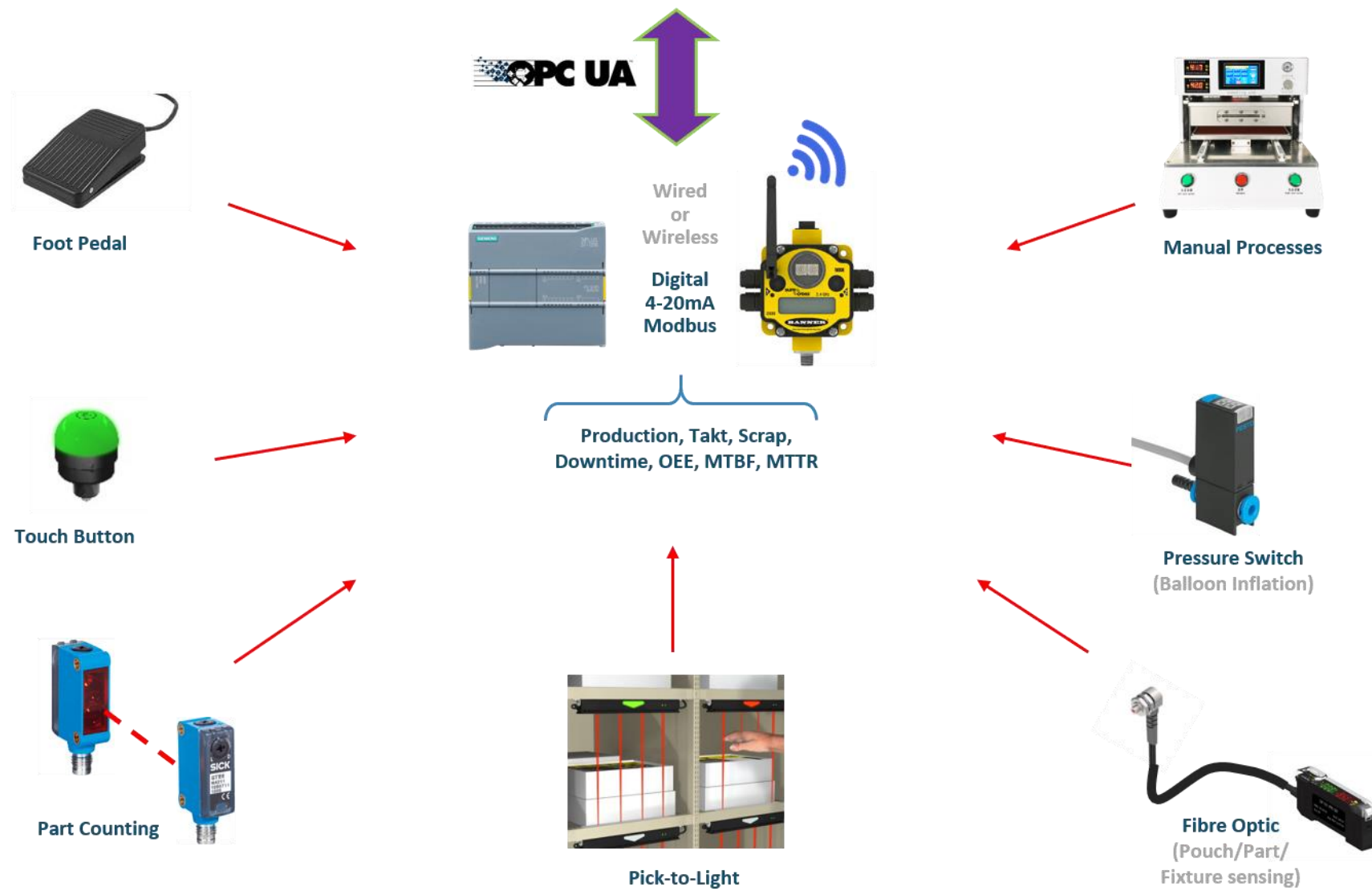


Wired or Wireless connectivity to legacy systems

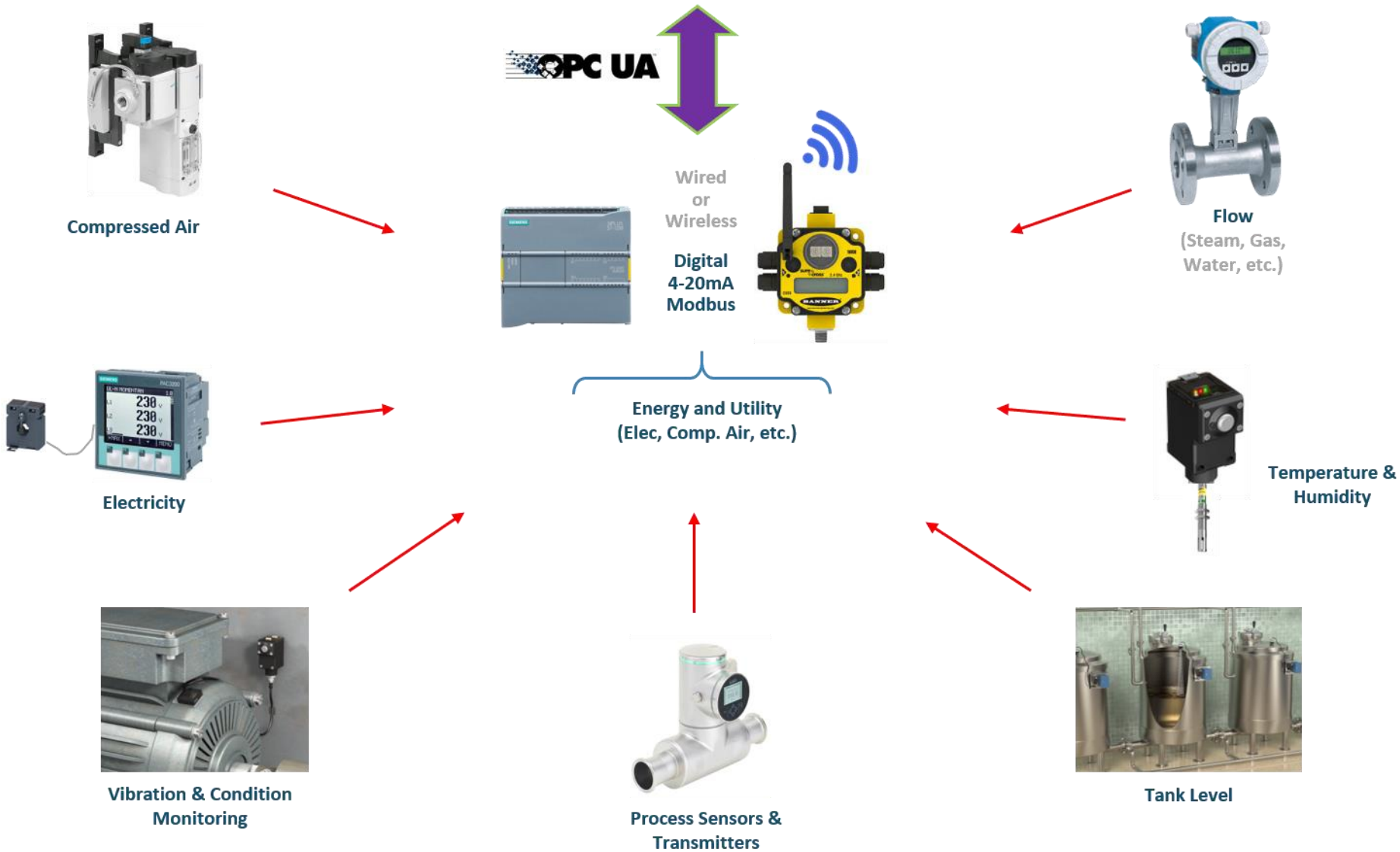
(built on >20 years experience in the manufacture of FMCG's)



Wired/Wireless connectivity to manual processes for discrete manufacturing

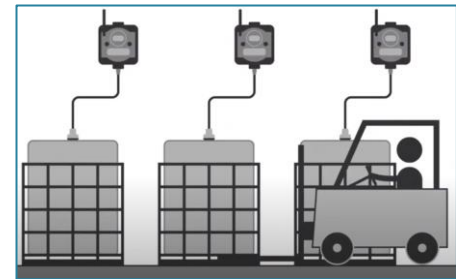
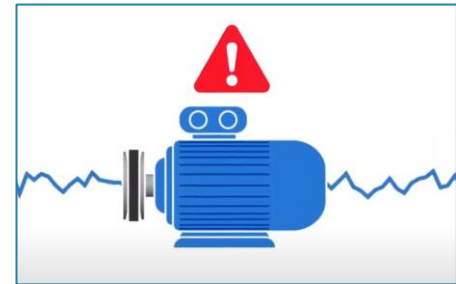


Wired/Wireless connectivity for Energy, Process and Condition Monitoring



Wireless Sensors: secure, flexible and ultra-reliable solutions – use cases

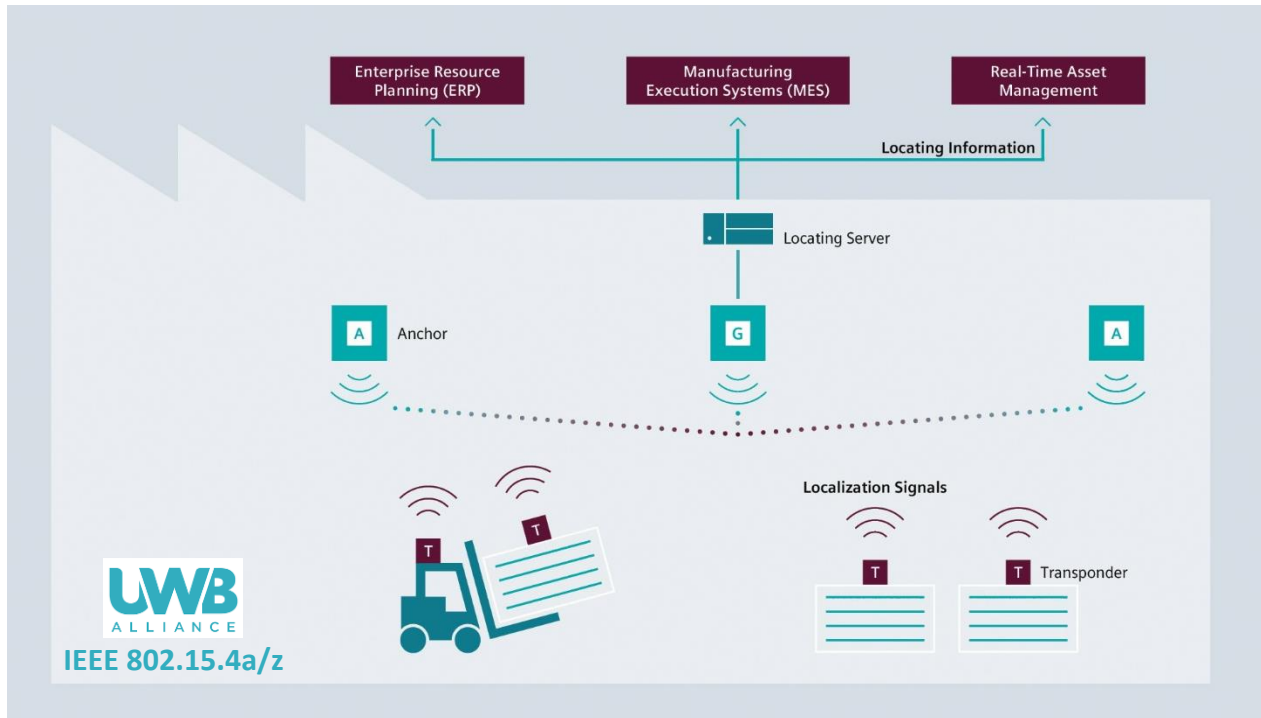
- **Wireless Vibration & Temperature monitoring of pumps, fans and motors:** see [Vibration Monitoring](#)
- **Wireless Temperature & Humidity monitoring of electrical panels**
- **Wireless Temperature & Humidity monitoring in warehouse and production areas** – *e.g. demonstrated impact of variability of warehouse humidity on cartoner downtime*
- **Wireless monitoring of liquid levels in bunds and usage of safety showers** – *e.g. created real-time map of large site, showing current equipment status*
- **Wireless monitoring of liquid levels in remote tanks/vessels:** see [Process Monitoring - IBC's and Totes](#)
- **Wireless monitoring of flow-meters in remote locations across a site**
- **Wireless pick-to-light and call-for-parts solutions:** see [Pick-to-Light](#) and [Call-for-Parts](#)



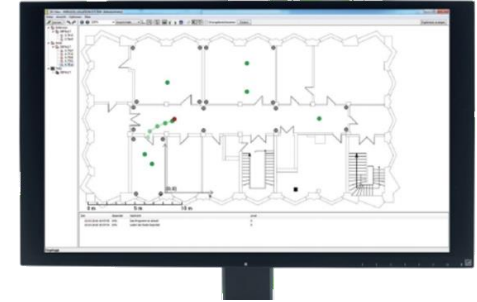
Real Time Locating System (RTLS): ultra-accurate, ultra-reliable location information

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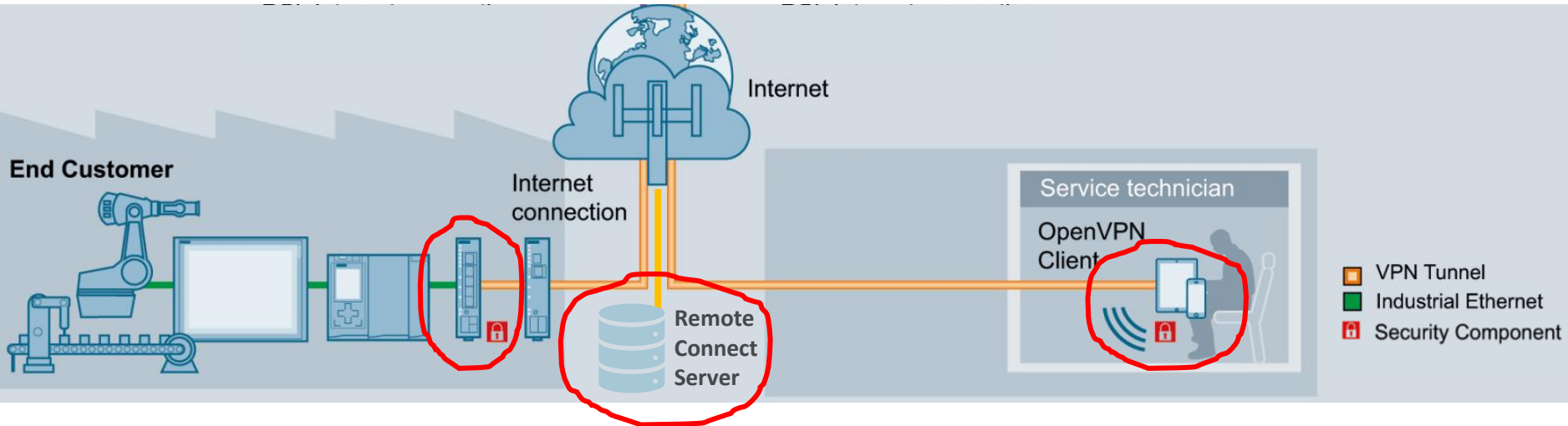
"Indoor GPS"



RTLS Transponder with e-paper and 2-way communication

- Locate any mobile vessel/tote/trolley/WIP with precision - [see RTLS](#)
- Eliminate time consuming search procedures and identify bottlenecks
- Optimise material flow and eliminate loss of material
- Full integration with existing ERP/MES and other database systems
- Display relevant data directly on any object

Secure Remote Connectivity: How it works



3 key elements:

- Remote Connect Server
- Remote Connect Client
- Network Security Device (VPN tunnel "end-point")

User Management:

- Users access the web interface of the server via https (access granted by administrator)
- User rights enable access and actions on the server
- Group affiliations enable access to specific remote devices

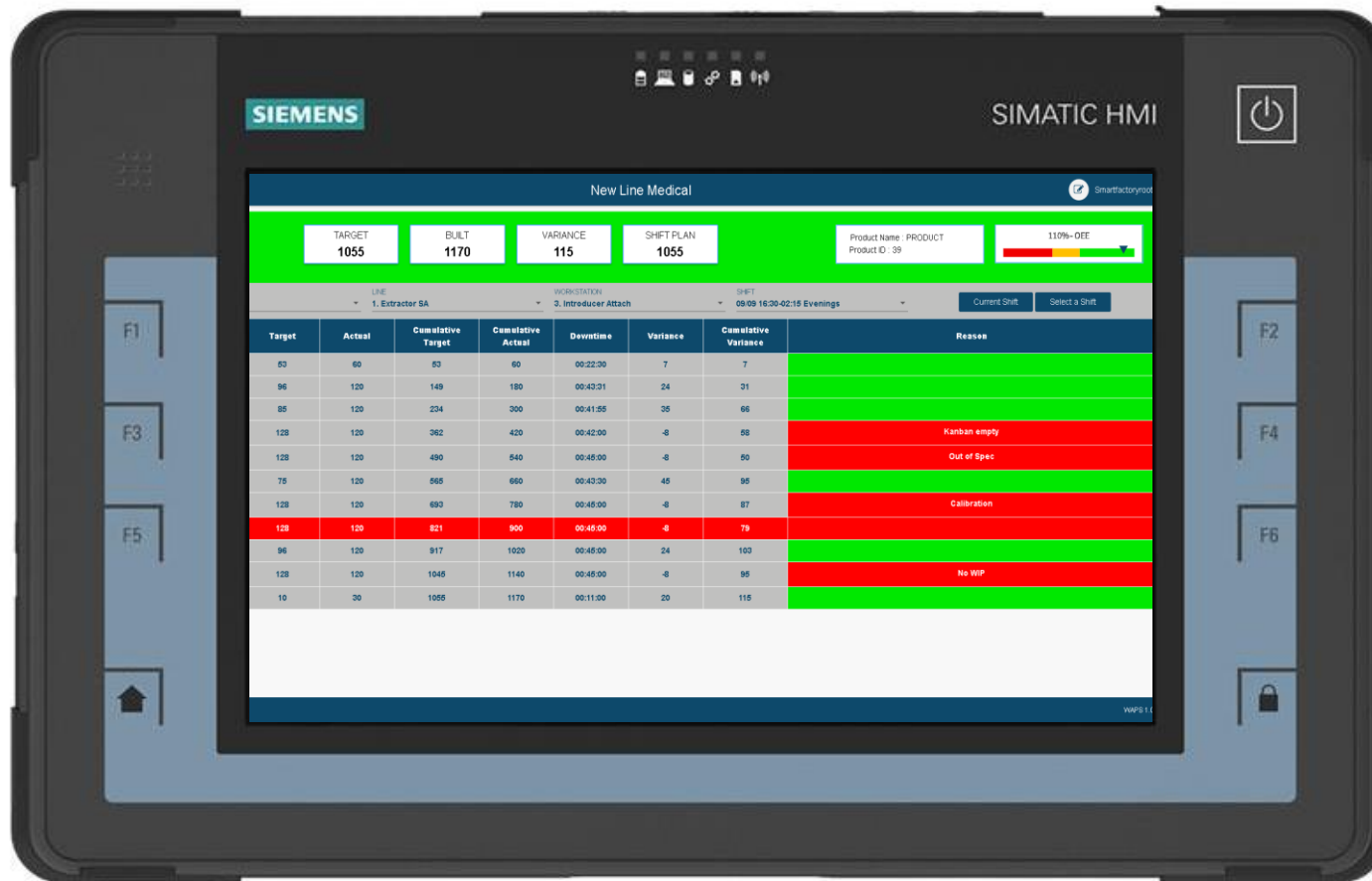
- e.g. **Service_Role**: The user can only connect to a specific remote device, but has no rights to make changes on the server

Work Area Performance System (WAPS):

Automated *Day-by-Hour* tracking – App runs on tough tablet or clients PC/tablet

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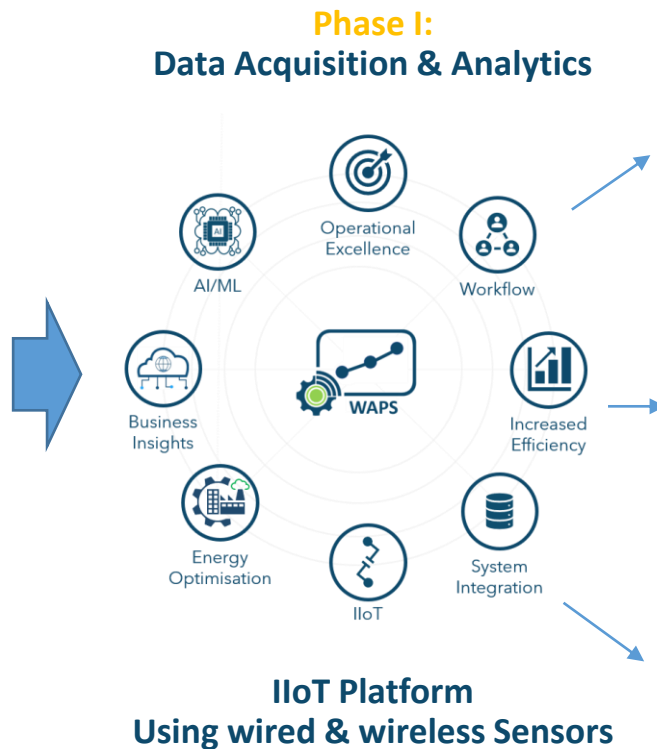
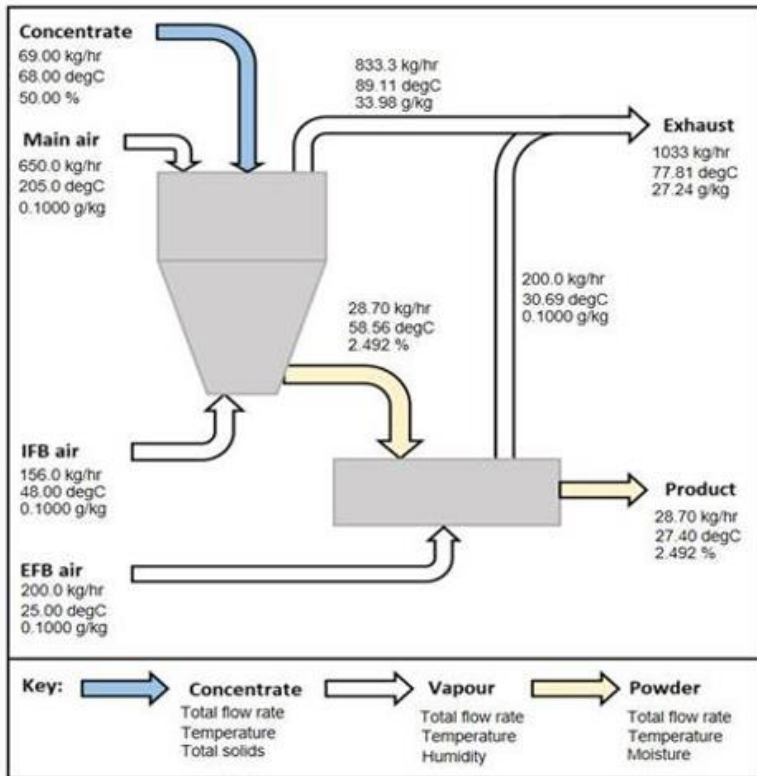
EFFICIENCY THROUGH INNOVATION



Spray Dryer Process Optimisation using AI

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EFFICIENCY THROUGH INNOVATION



One of the largest Spray Dryers globally (manufacture of baby nutrition)

Energy Consumption >€15MM/yr

Approx. 800 process variables

Approx. 2MM data points

Phase II Objective: Reduce Energy Consumption using AI/ML



Energy & Condition Monitoring

- Wireless Connectivity to any process variable (Electricity, Gas, Steam, Compressed Air, etc.)
- Secure, Reliable and Low-cost
- Rapid Installation with minimum disruption

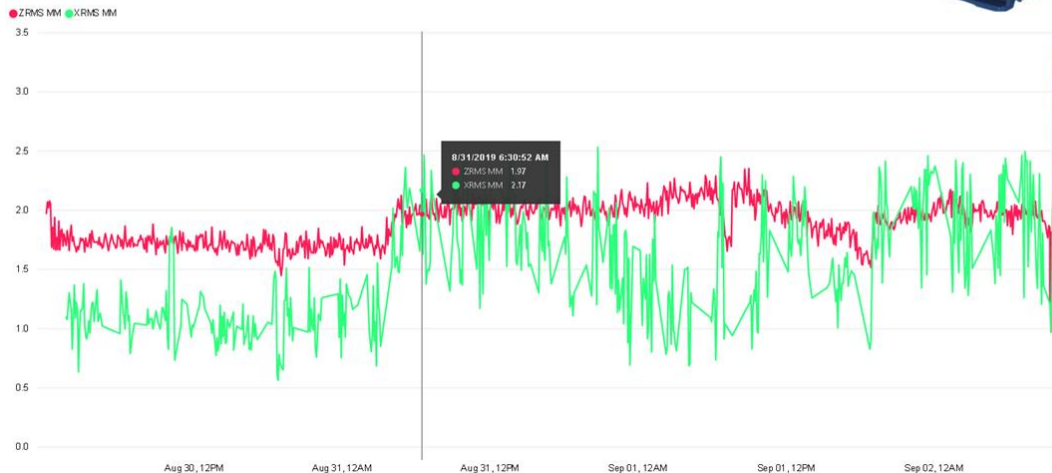
**Digital
4-20mA
Modbus**



Motor
☒ Air Handler 1
☐ Air Handler 2
☐ Roof 1

Condition Monitoring - Temperature & Vibration Data

8/30/2019 9/2/2019



- Wireless Temperature & Vibration
- Self-learning algorithm
- Warning & Alarm thresholds
- Alerts via Dashboards & e-mail/SMS



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To learn more visit:

www.smartfactory.ie