



AVEVA WORLD



**Brüel & Kjær Vibro**

A member of the NSK Group



**BAUSCH+STRÖBEL**

# Condition Monitoring as a Service



From 4 to 2850



1967 **4**   
employees

2024 **2850**   
employees worldwide







Working with you to find the best possible solutions

AMGEN



Biogen

Boehringer  
Ingelheim

CSL Behring  
Biotherapies for Life™

BD

FRESENIUS  
KABI  
caring for life

GILEAD

Genentech  
A Member of the Roche Group

gsk

Janssen  
PHARMACEUTICAL COMPANIES  
OF JOHNSON & JOHNSON

NOVARTIS

Mylan®

Pfizer

MERCK

Roche

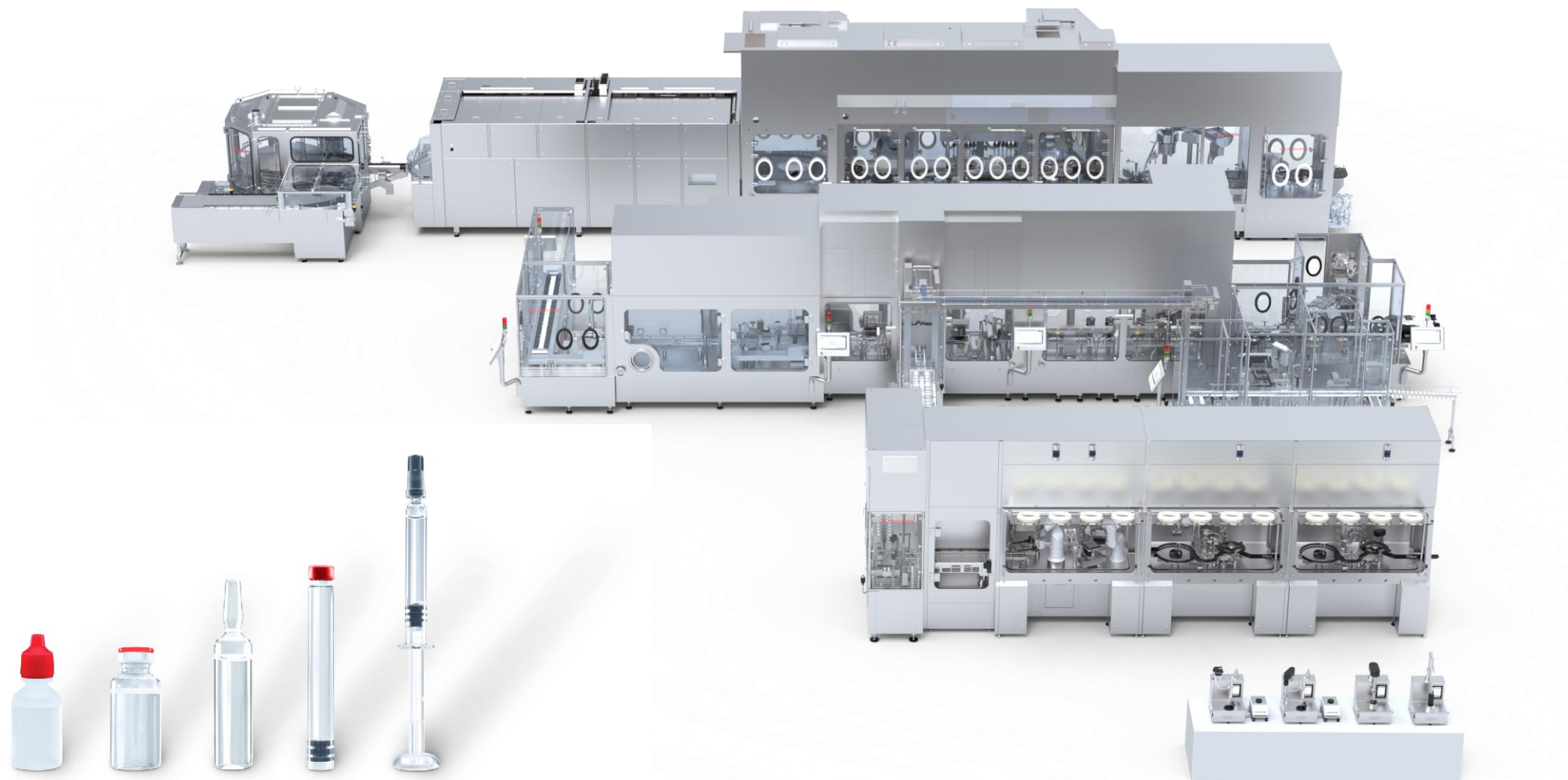
REGENERON

SCHOTT  
glass made of ideas

sanofi

Takeda

# Machine portfolio: From lab-scale machines to high-speed production lines



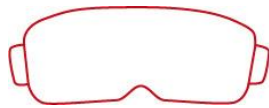
# Machine portfolio: From lab-scale machines to high-speed production lines



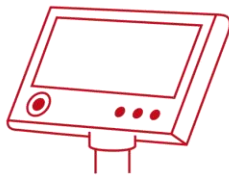
- GENEX
- CombiSys
- VarioSys

# B+S OMNIA

Central platform for everything to do  
with Bausch+Ströbel machines



**OMNIA XR**  
Virtual Machine Training



**OMNIA**  
**TROUBLESHOOTING**  
Operator Support



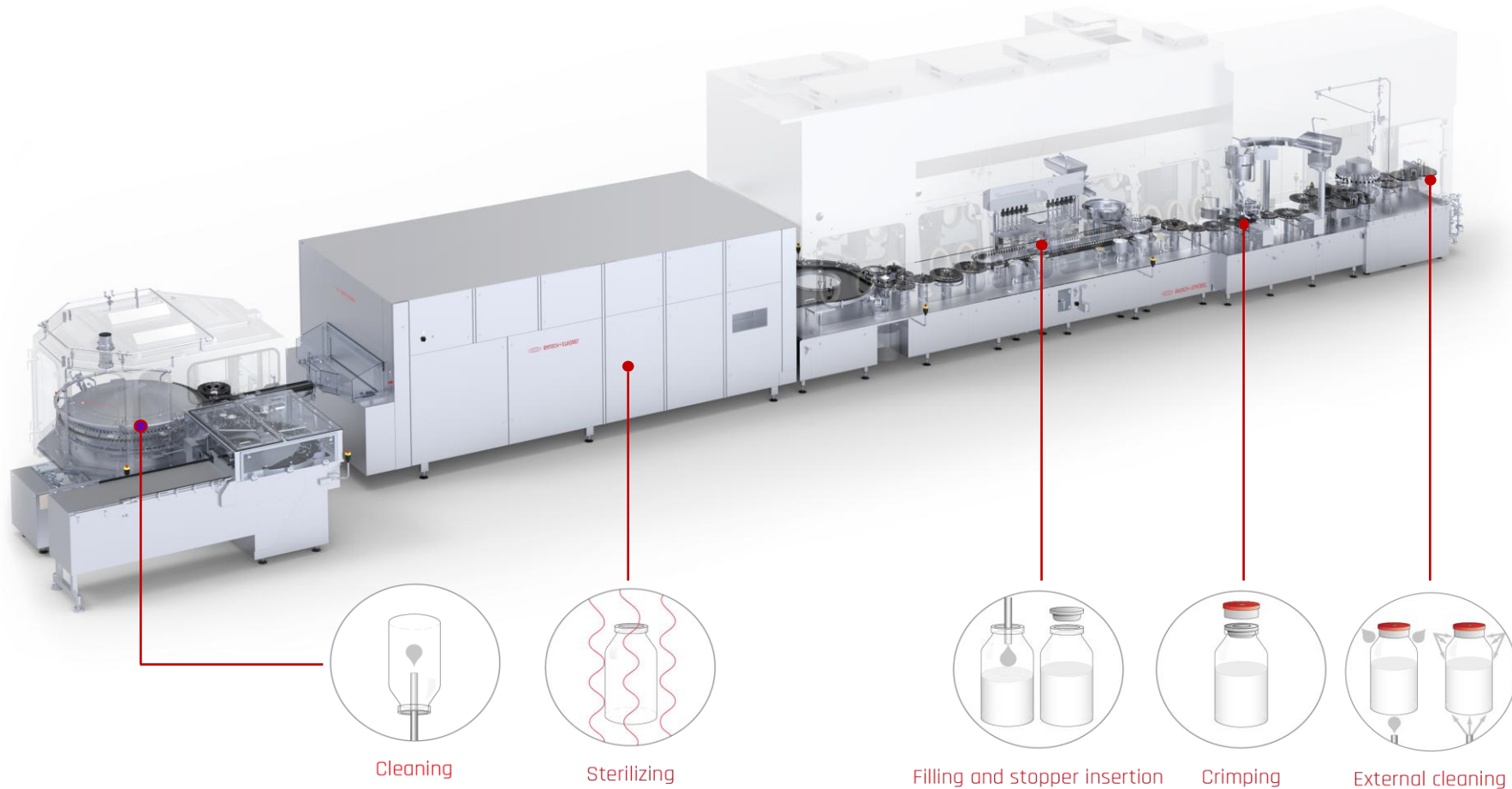
**OMNIA CONNECT**  
Data Provisioning



**OMNIA PI**  
Data Analysis

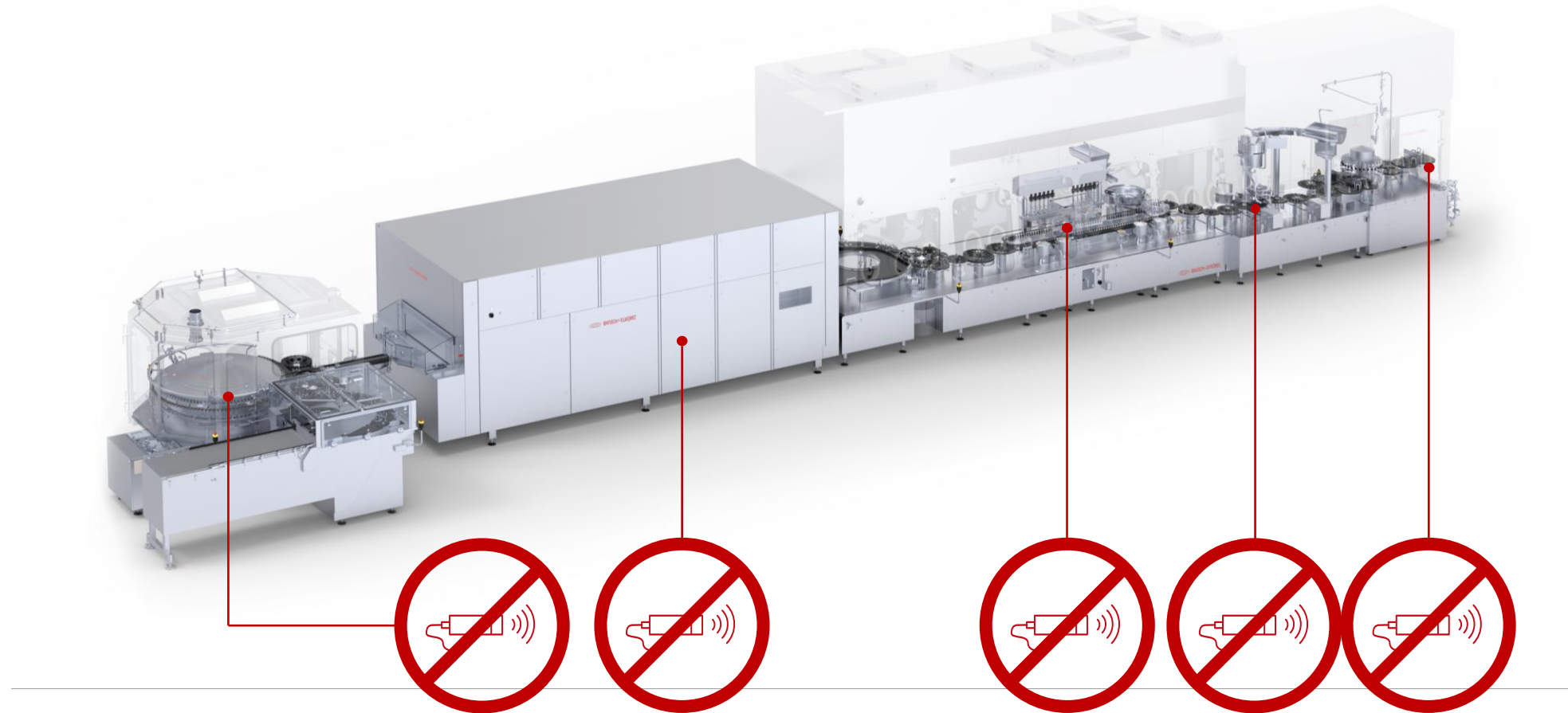


# Machine processes – Bulkware production systems

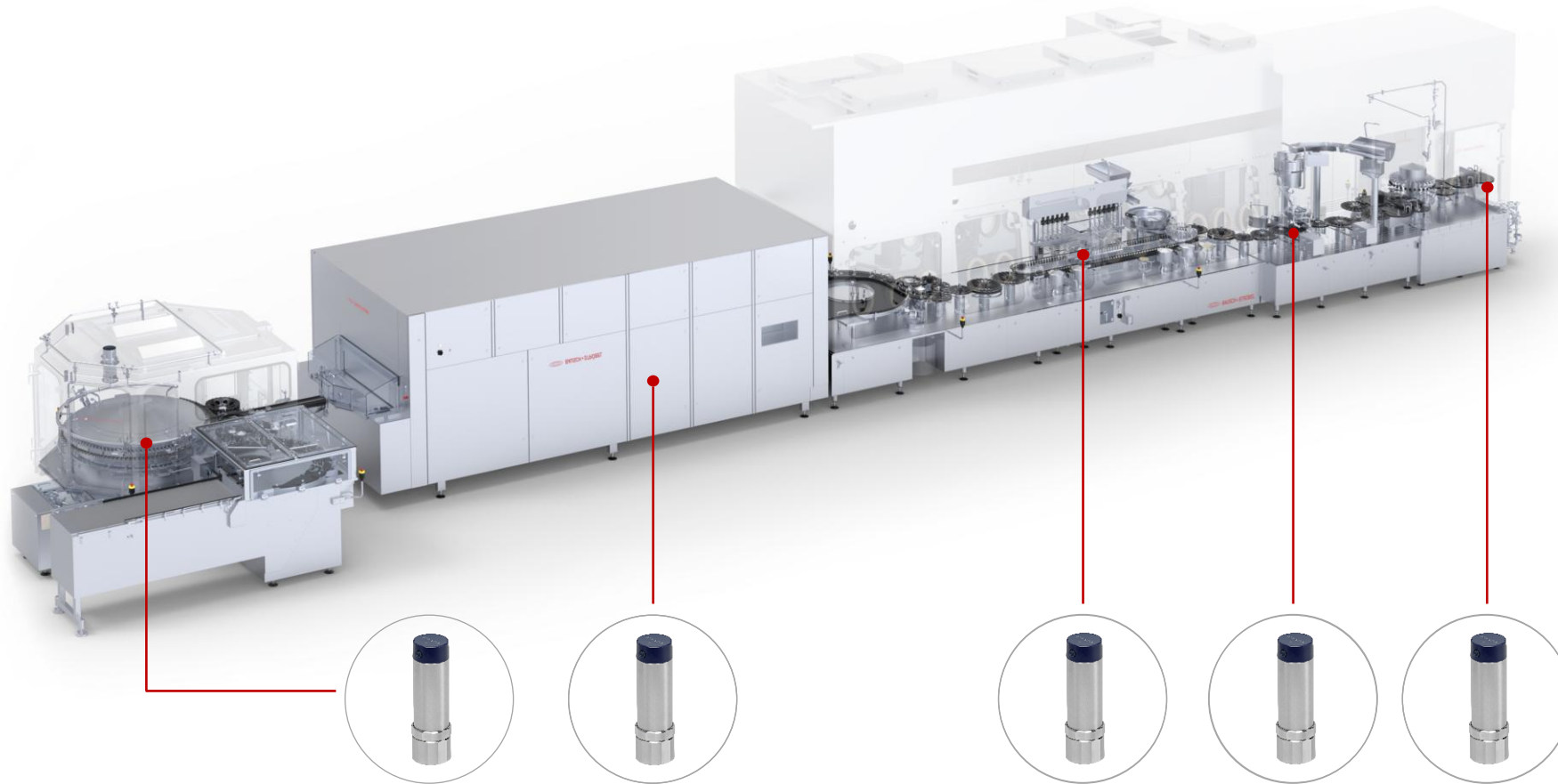




# Machine processes – Bulkware production systems

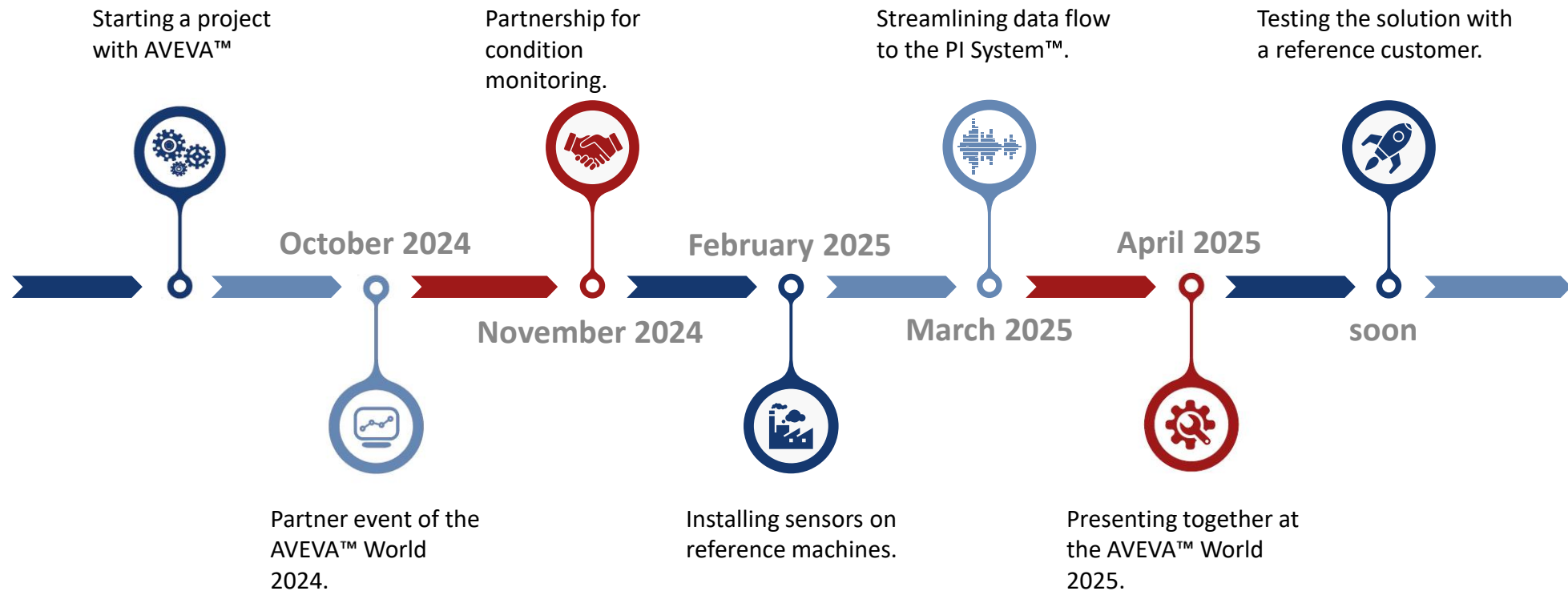


# Machine processes – Bulkware production systems

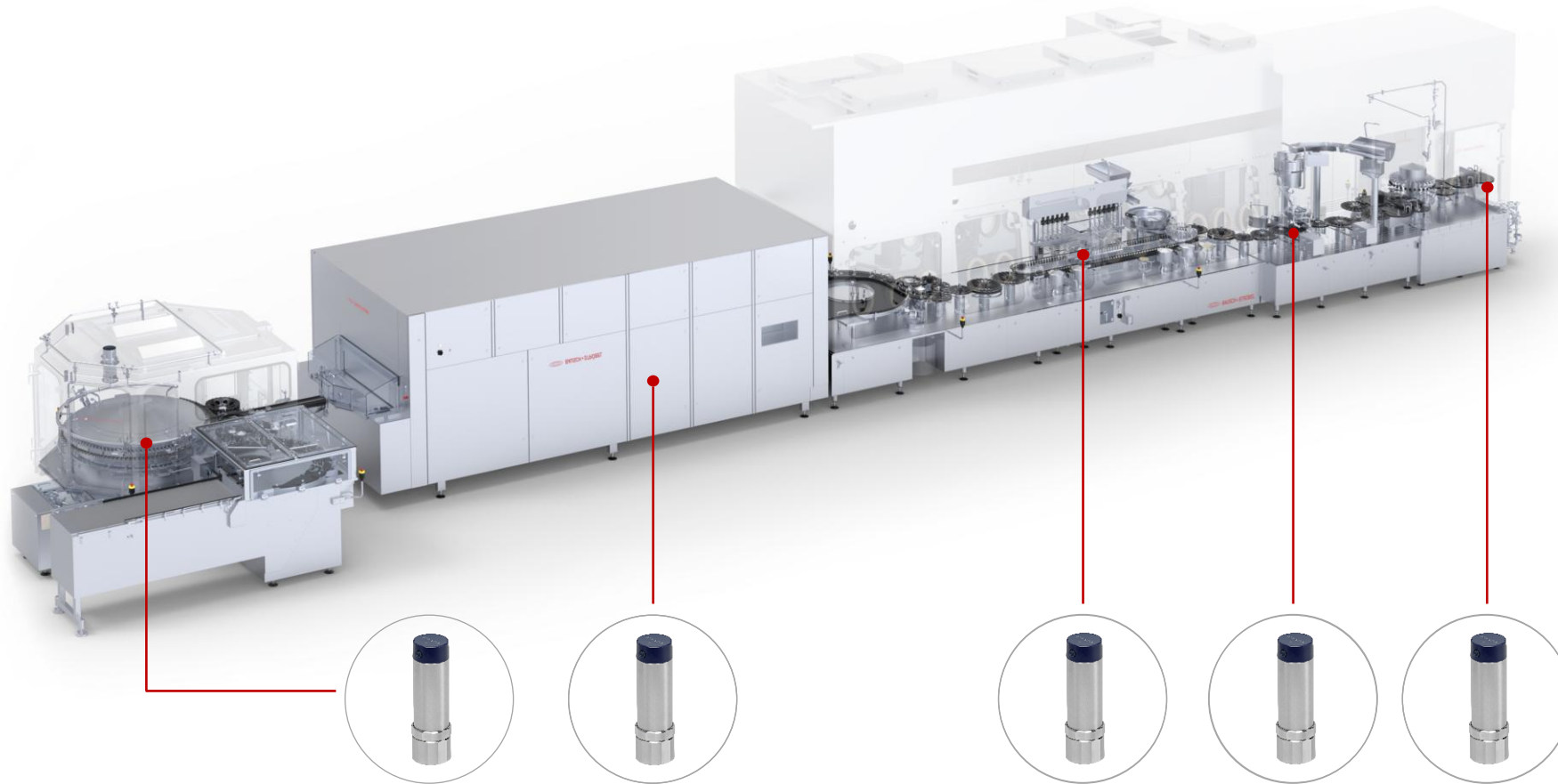




# Project Timeline



# Machine processes – Bulkware production systems





# A pioneer in asset optimization and protection solutions for rotating equipment



**Brüel & Kjær Vibro**

A member of the NSK Group



Founded in

**1942**

Workforce of

**> 210**

employees

Network of

**> 70**

channel partners

**2**

main manufacturing /  
logistics facilities

**3**

diagnostic and surveillance  
expertise locations

**4**

commercial offices  
worldwide

With over

**40,000**

wind turbines instrumented

With over

**800**

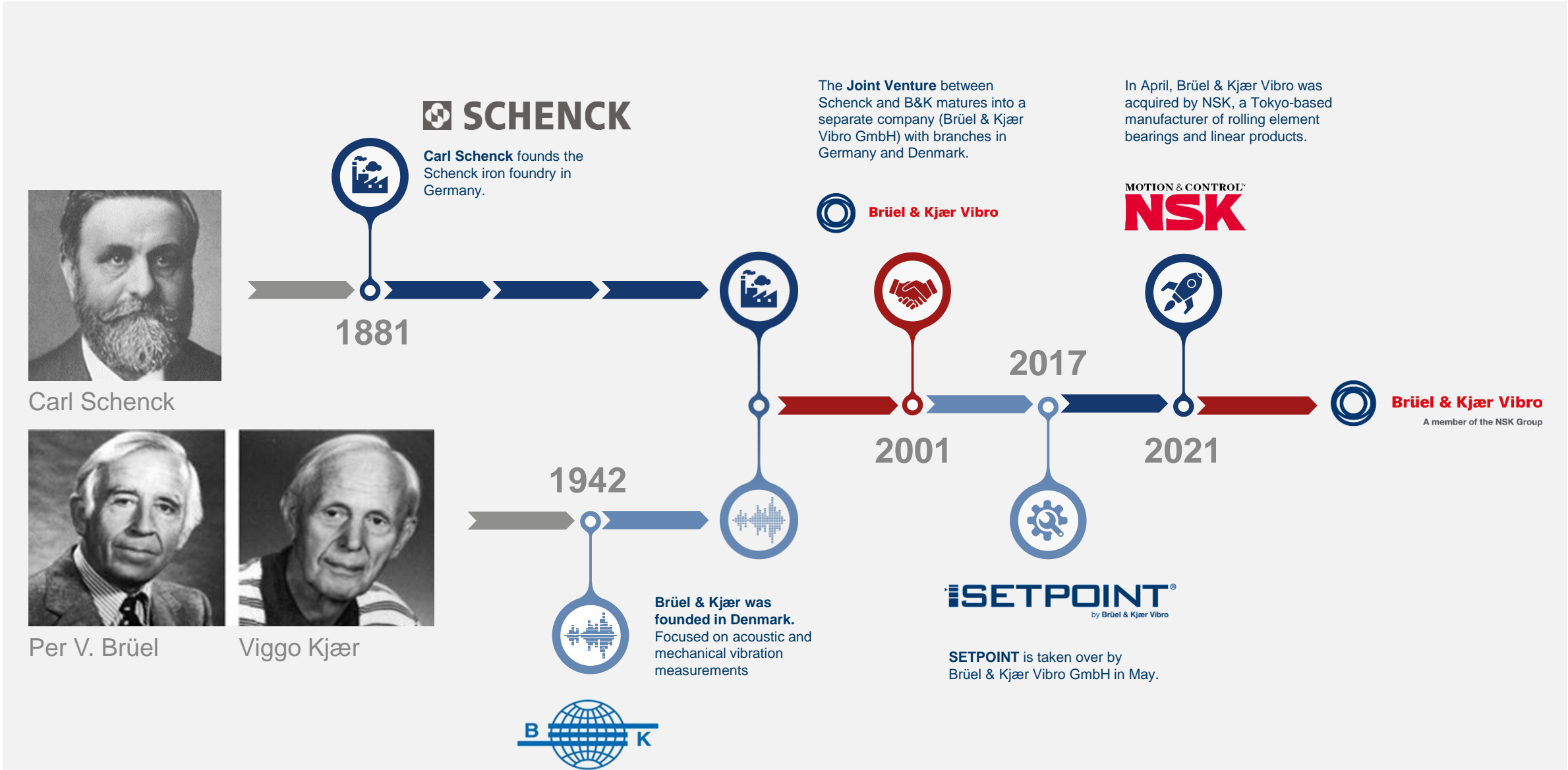
hydro turbines instrumented

With over

**10,000**

hydrocarbon-processing  
machines instrumented

# Pioneering spirit since 1881





We are the pioneers of condition monitoring and machine protection with decades of expertise in safeguarding both people and machinery.

We give every machine a voice, that we translate into actionable insights to boost productivity.

By securing energy and industrial infrastructure, we support a sustainable society.

**We keep the world's machinery spinning!**



# High quality sensor portfolio



**Brüel & Kjær Vibro**

A member of the NSK Group

B&K Vibro offers a range of purpose-built sensors to detect vibration-related machine problems

Accelerometers



Velocity sensors



Wireless sensors & gateways



Displacement sensors



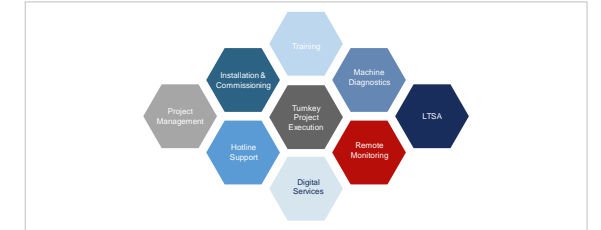
Transmitters





# B&K Vibro's winning formula

## 360° offering



## Across a wide range of industries



Wind Energy



Oil & Gas



Petrochemical



Power



Hydro Power



Pharmaceutical



Pulp & Paper



Chemical



Steel



Machine Tools

## Across all rotating equipment assets



Blower



Gearboxes



Generators



Gas Turbines



Fans



Compressors



Hydro Turbines



Motors



Pumps



Recips



Steam Turbines



Wind Turbines

## Unique experience and data ownership

1tn+

data points owned

200k+

monitoring hours

40k+

monitoring systems sold

1,180+

bearing types monitored

120+

gearbox types monitored

10+

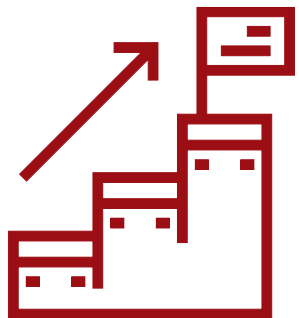
years average tenure  
of R&D team

# Lighthouse Project



## Goals

- Secure smooth operations
- Optimize maintenance windows
- Make the solution retrofittable



## Approach

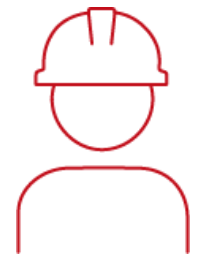
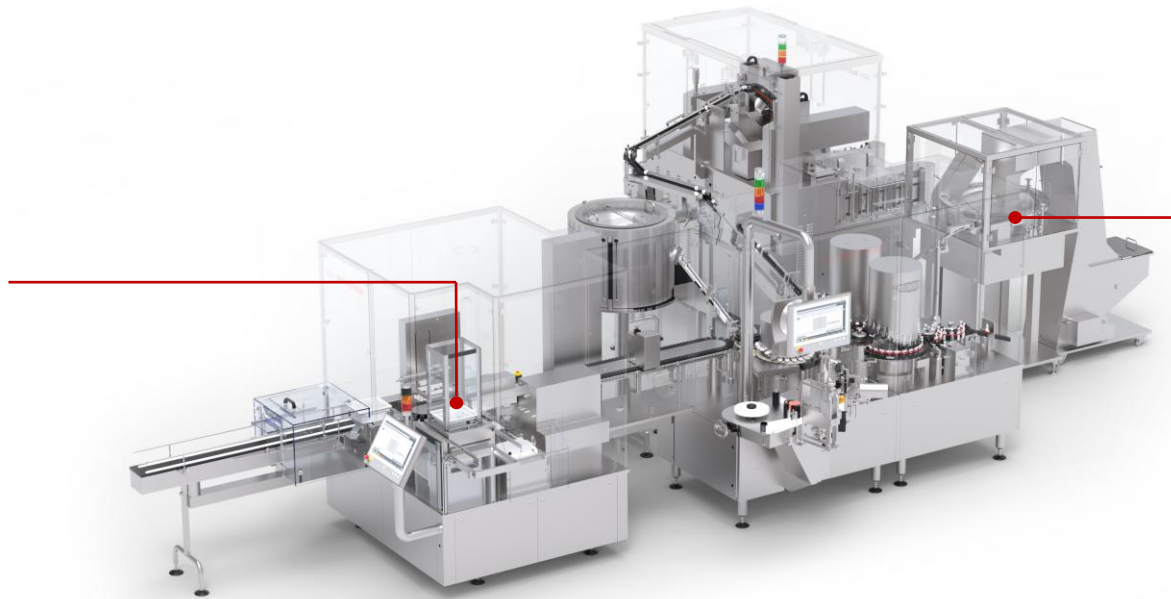
- Collecting data
- Generate insights
- Enlighten users

## Partners



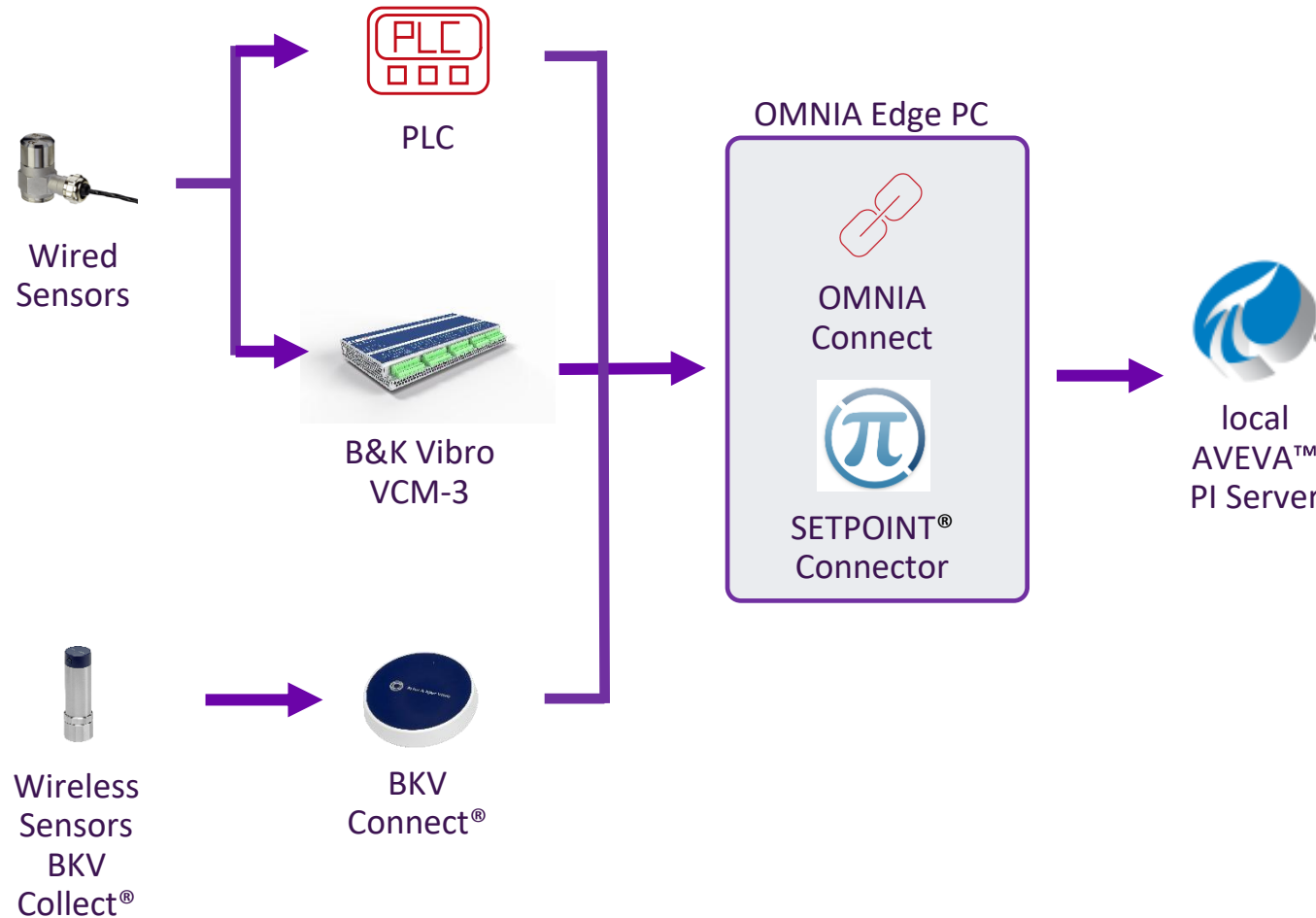
# Collecting Data

Wired sensors vs. wireless sensors



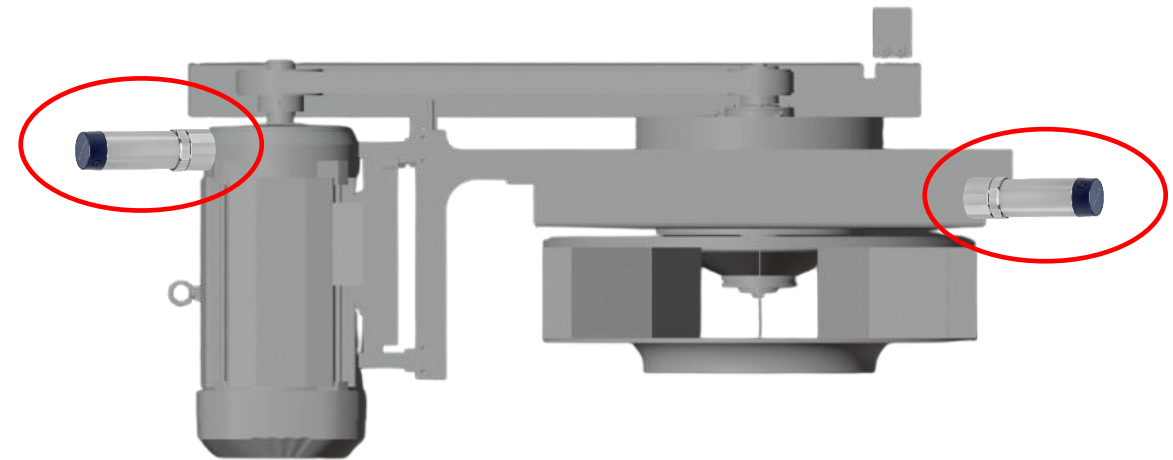
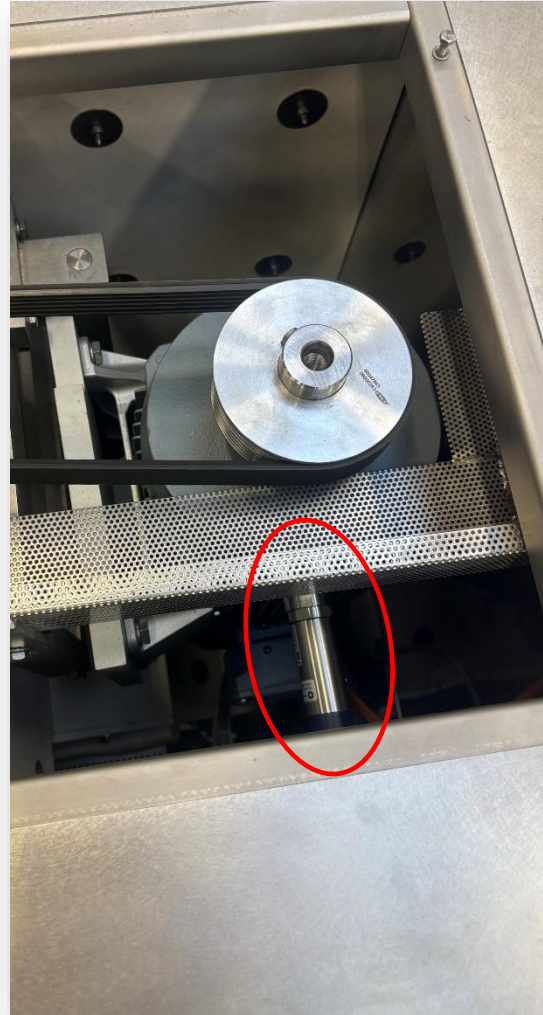


# Collecting Data

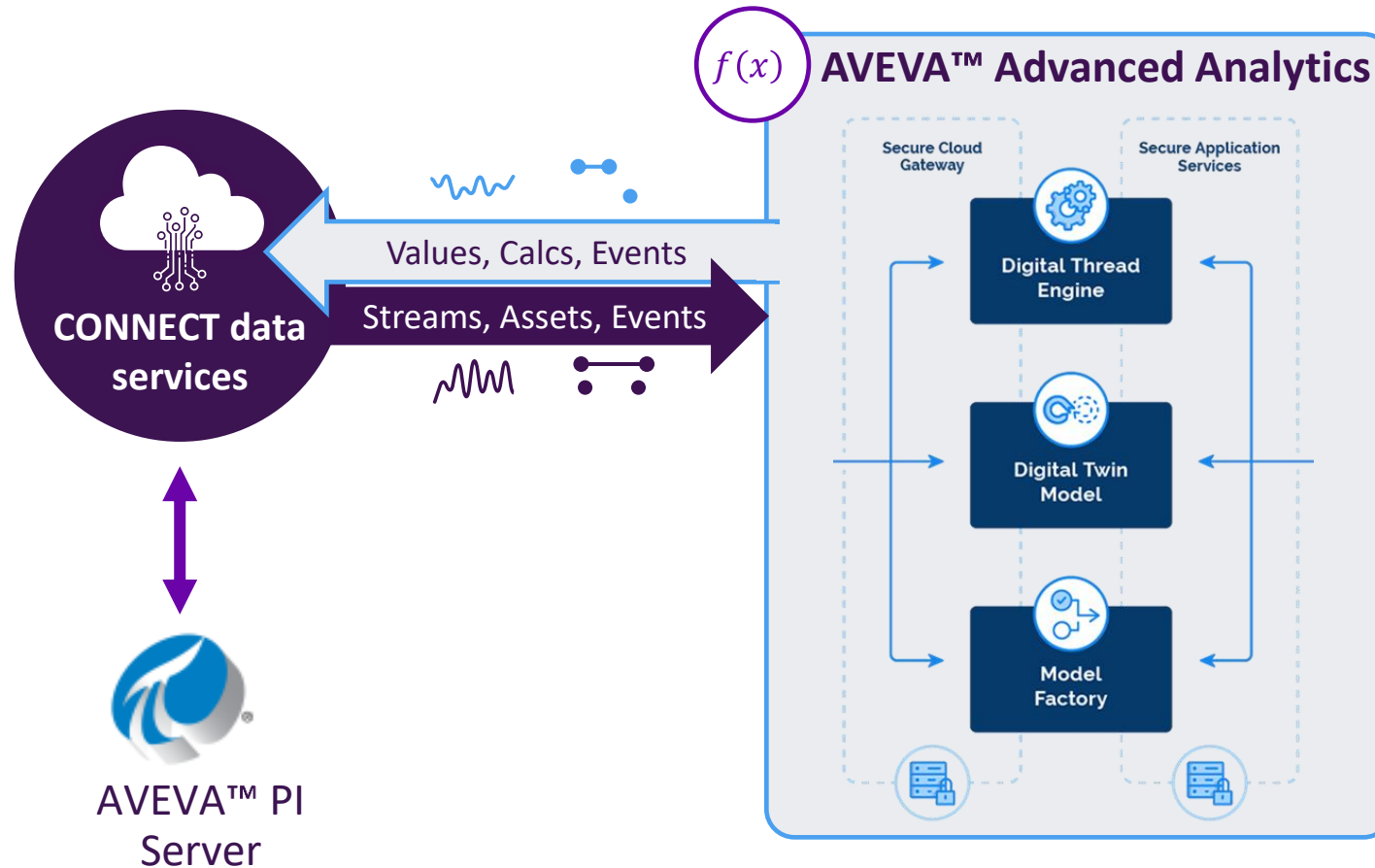


- Find out where to measure
- Transfer data to AVEVA™ PI System™
- Keep GxP data on your local AVEVA™ PI Server
- Make the approach retrofittable

# Collecting Data



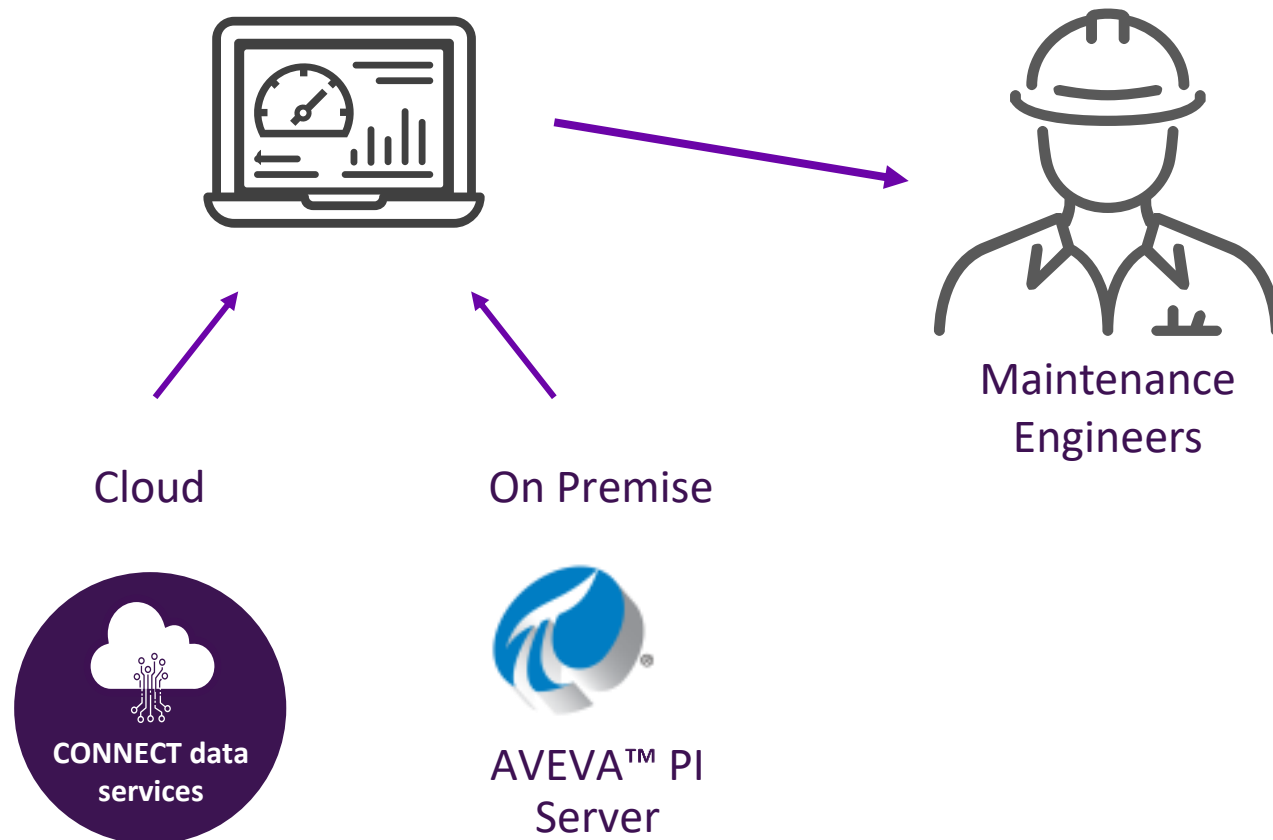
# Generate Insights



- Combine vibration data with process data
- Build on the experience of machine constructors and vibration experts
- Train a model and adapt it to data snapshots

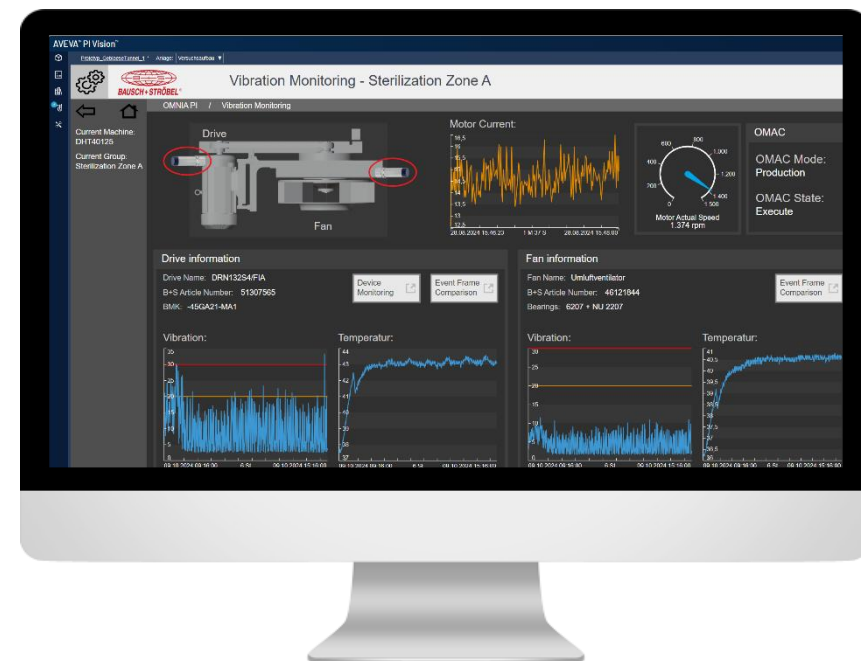
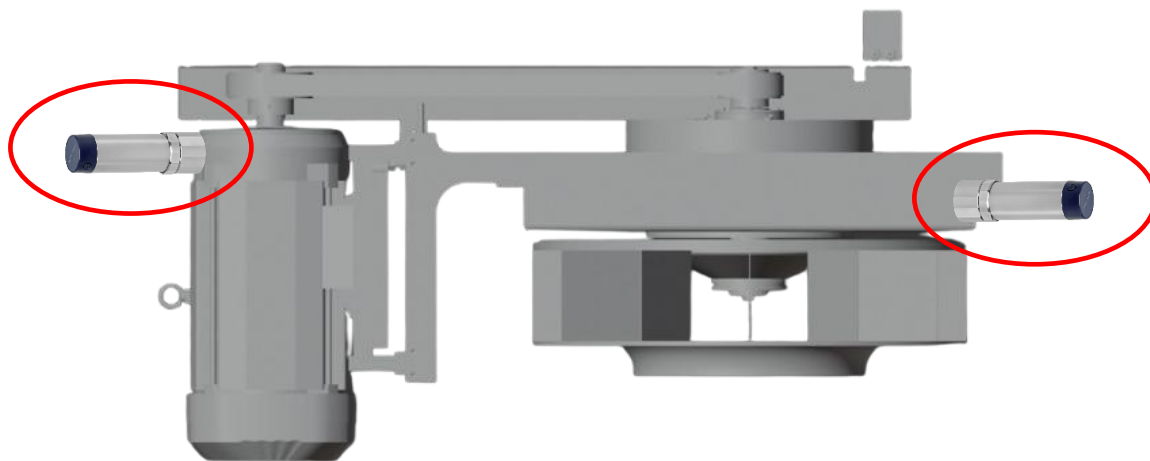


# Enlighten Users

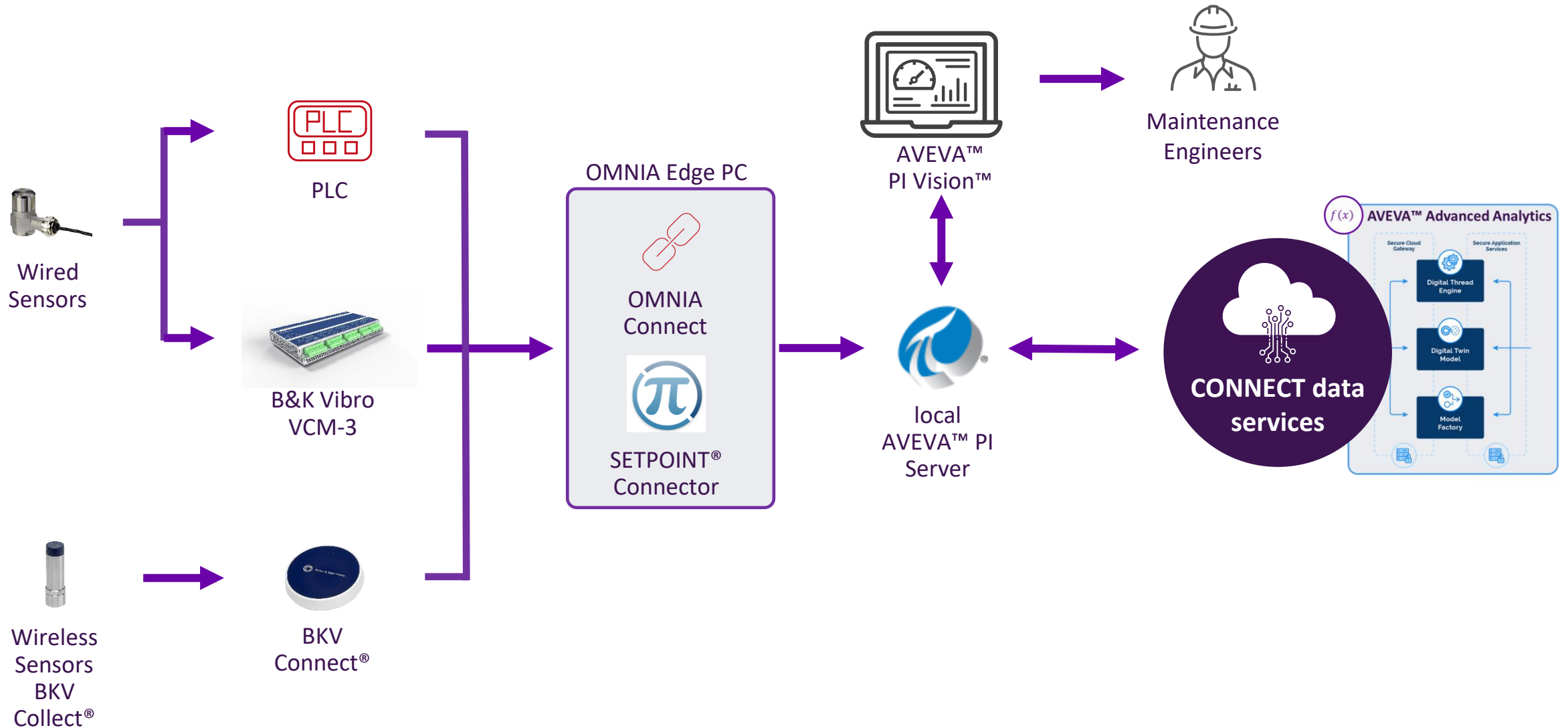


- Generate actionable insights
- Secure smooth operations
- Optimize planned downtimes

# Enlighten Users



# Condition Monitoring as a Service





# Road Ahead

- Optimize data collection
- Optimize analytics
- Define retrofit solution
- Select reference customers



# Condition Monitoring as a Service

 **BAUSCH+STRÖBEL**

 **Brüel & Kjær Vibro**  
A member of the NSK Group

Securing smooth operations  
through actionable insights.

- Full data ownership.
- Secure architecture.
- True collaboration.

