AVEVAWORLD

PARIS

Unlocking The Potential Of Predictive Maintenance With The AVEVA™ PI System™

Why Programs Fail And How To Succeed

Christian Benk | October 16, 2024

Introduction and contact details

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B&K Vibro – The Company

A pioneer in asset optimization and protection solutions for rotating equipment

Founded in
1942

Workforce of
213
employees

Network of
76
channel partners

2
main manufacturing /
logistics facilities

3
diagnostic and surveillance
expertise locations

5
commercial offices
worldwide

With over
35,000
wind turbines instrumented

With over
800
hydro turbines instrumented

With over
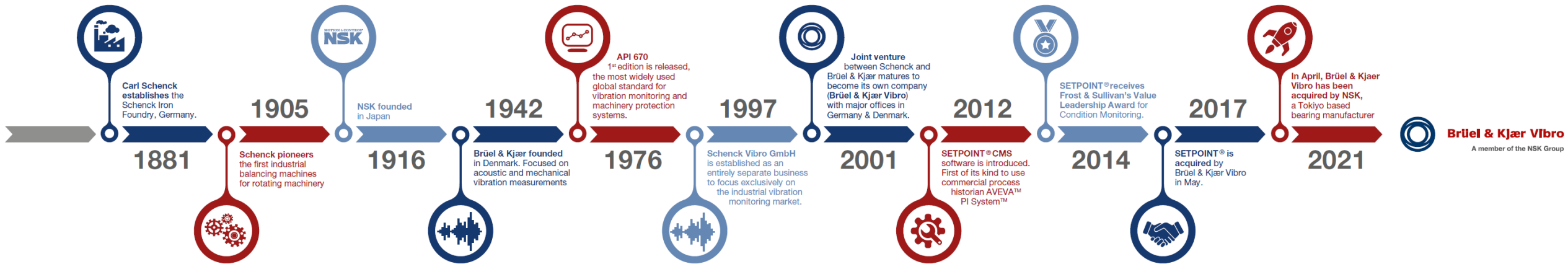**10,000**
hydrocarbon-processing
machines instrumented

B&K Vibro – Company History

Carl Schenck establishes the Schenck Iron Foundry, Germany.

1905

NSK founded in Japan

1942

API 670 1st edition is released, the most widely used global standard for vibration monitoring and machinery protection systems.

1997

Joint venture between Schenck and Brüel & Kjær matures to become its own company (**Brüel & Kjær Vibro**) with major offices in Germany & Denmark.

2012

SETPOINT®receives Frost & Sullivan's Value Leadership Award for Condition Monitoring.

2017

In April, Brüel & Kjaer Vibro has been acquired by NSK, a Tokiyo based bearing manufacturer

1881

Schenck pioneers the first industrial balancing machines for rotating machinery

1916

Brüel & Kjær founded in Denmark. Focused on acoustic and mechanical vibration measurements

1976

Schenck Vibro GmbH is established as an entirely separate business to focus exclusively on the industrial vibration monitoring market.

2001

SETPOINT®CMS software is introduced. First of its kind to use commercial process historian AVEVA™ PI System™

2014

SETPOINT® is **acquired** by Brüel & Kjær Vibro in May.

2021

B&K Vibro – Locations and Presence

Lyngby
DÄNEMARK

Darmstadt
DEUTSCHLAND

Gardnerville
USA

Houston
USA

Beijing
CHINA

● Headquarters

● Remote Monitoring Centers

Only **30%**
of manufacturing companies know
the exact condition of their assets

One-hour breakdown of a
machine can cost a company
up to **$260.000**

Introduction: Predictive Maintenance in Today's Industries

- Predictive maintenance is critical for maximizing uptime and minimizing costs.

- However, many programs fail due to outdated methods and inefficiencies.

- Today, we'll explore common pitfalls and how AI and limitless monitoring revolutionize maintenance strategies.

Why Predictive Maintenance Programs Fail

- Rigid, Limit-based Systems:
    - 90% of alarms are false positives.
    - Fixed thresholds don't adapt to variable operating conditions.
- Dependence on Team Expertise:
    - Local teams need experience and tools to interpret data effectively.
- Cognitive Overload:
    - Too much data leads to missed insights – "can't see the forest for the trees."

Threshold-Based Alarm Management
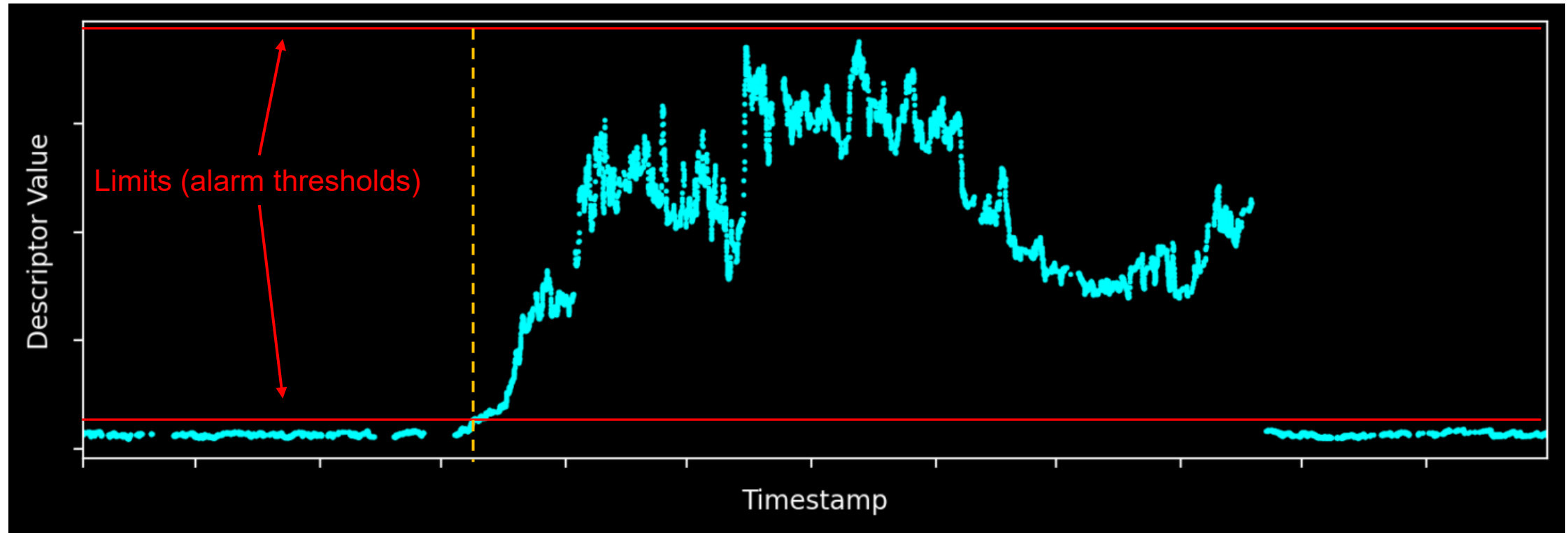
Problem: Alarm Thresholds (Limits)

Each trend value needs its own thresholds!
Only known to experts. Huge problem for non-experts!

Complexity of managing millions of alarm thresholds!

A huge number of false alarms!

Only 2 (or 4) level changes can be detected!
Unable to detect various types of change!

They didn't saw the forest for the trees

"Hey Chris, we really like your system, but recently, we had an incident that your system didn't pick up before."

The reality: The data indicated it way before, but nobody noticed it!

B&K Vibro – Our Mission

"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!"

Seamless Integration with the AVEVA™ PI System™

- Why Integrate Condition Monitoring with the AVEVA™ PI System™?
  - Centralized data from all machines.
  - Enable deeper cross-system analytics and decision-making.
- Key Benefits:
  - Real-time data.
 - Predictive insights based on historical trends and patterns.
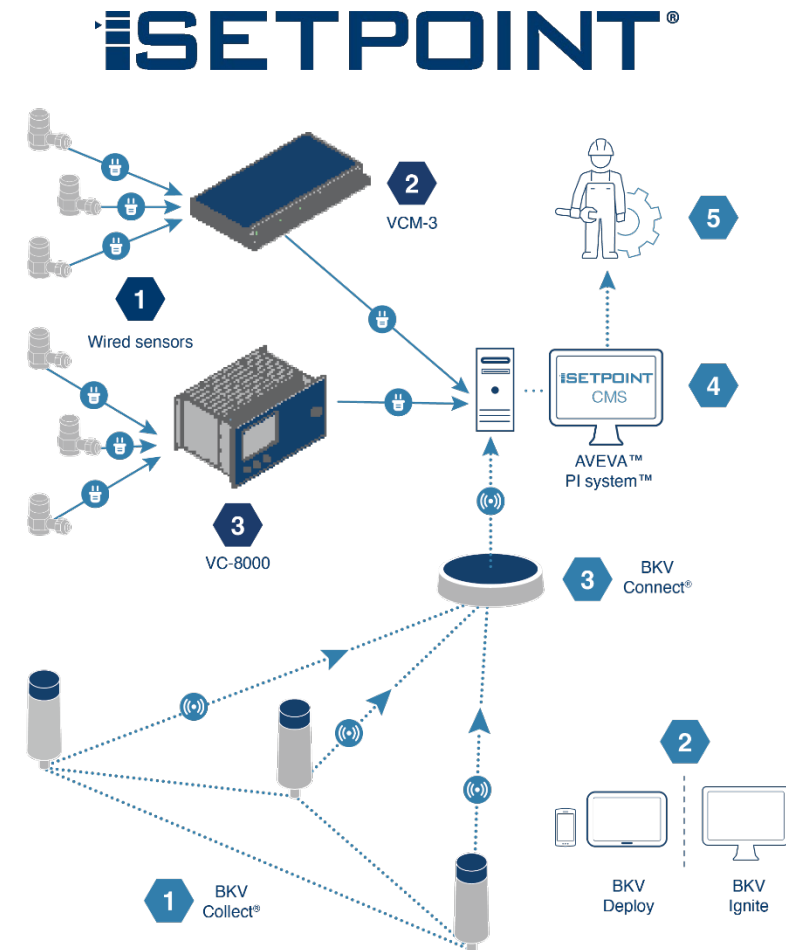
Limitless Condition Monitoring: Eliminating Manual Thresholds

- AI Removes the Need for Manual Thresholds:
  - Traditional systems rely on fixed limits – AI adapts dynamically.
  - No more false alarms from static limits.
- AI-Driven Insights:
  - Alerts based on evolving machine conditions.
  - Predict issues before they happen – focus on what matters.
- Impact:
  - Efficient, accurate monitoring with fewer false positives.

Real-Life Example: Limitless CMS vs Threshold-based Alarm Management

Descriptor Trend with alarm thresholds and detected change point
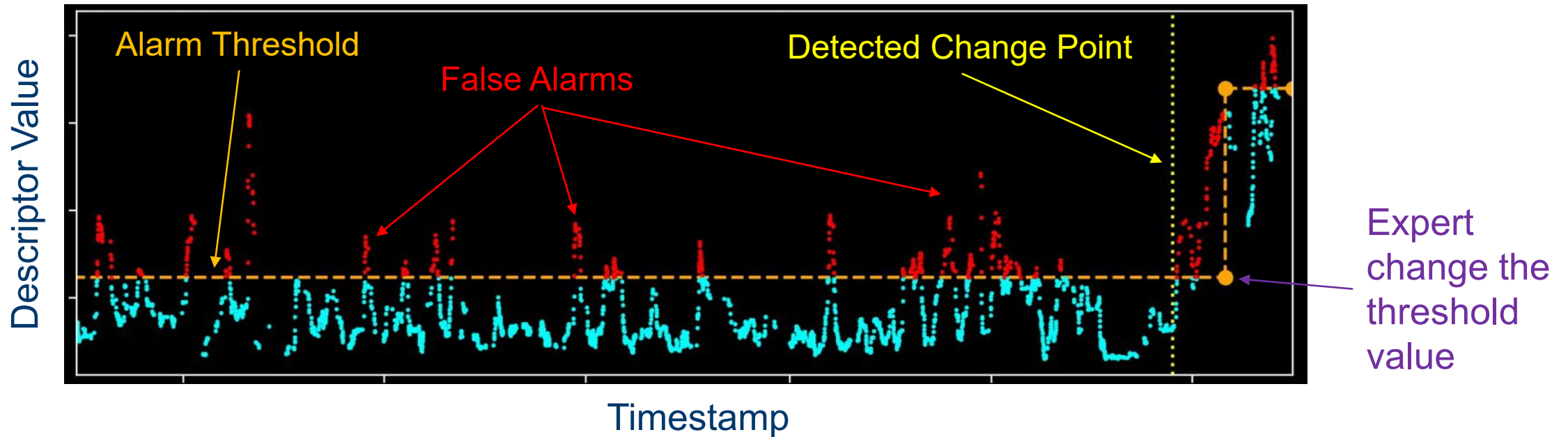
How AI & Limitless Monitoring Provide Adaptive Solutions

- Dynamic, Adaptive Alerts:
  - No manual threshold management needed.
  - AI is adapted to real-world machine conditions.
- Actionable Insights:
  - AI flags deviations before they become critical issues.
  - Reduced alarm fatigue and more time spent on real issues.
- Efficiency Gains:
  - Maintenance teams focus on high-priority events.
  - Reduced downtime and improved machine health.

From Critical Machinery to Balance-of-Plant Monitoring

- **Start with Critical Equipment:**
  - SETPOINT® CMS powered by the AVEVA™ PI System™ for critical machinery.
- **Extend Capabilities with our CMaaS offering:**
  - Expand monitoring to balance-of-plant with BKV Beyond®.
- **The Connect Platform:**
  - Global data availability for every part of the operation.
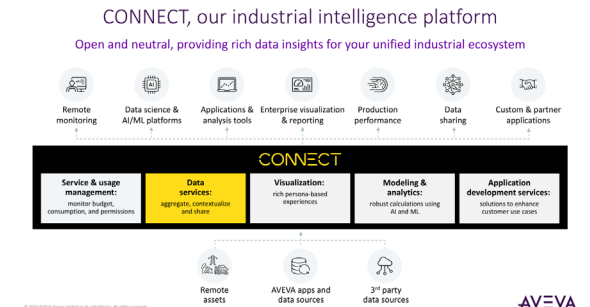
Owning Your Data: Unlocking its Full Potential

Data Ownership:

- Full ownership over machine data is key to unlocking its potential.
- Ensuring that all stakeholders (maintenance teams, data analysts, etc.) can access and act on the data is crucial.

Future Vision:

- Hybrid offering that merges service-based and hardware-based approaches.
- Move towards a more data-driven, AI-enhanced, globally scalable predictive maintenance strategy

Key Takeaways: AI & Limitless Condition Monitoring

- Avoiding the common pitfalls of predictive maintenance starts with flexible, data-driven systems.

- Integration of Condition Monitoring with the AVEVA™ PI System™ and advanced AI opens new doors to efficiency and reliability.

- The Connect Platform will enable global data availability, setting the stage for next-gen maintenance strategies.

- Final Thought:
    - Data is the key to revolutionizing maintenance strategies; **Own it, use it, and evolve.**

Q&A