HEADQUARTERED IN BOSTON, MA

APERIO

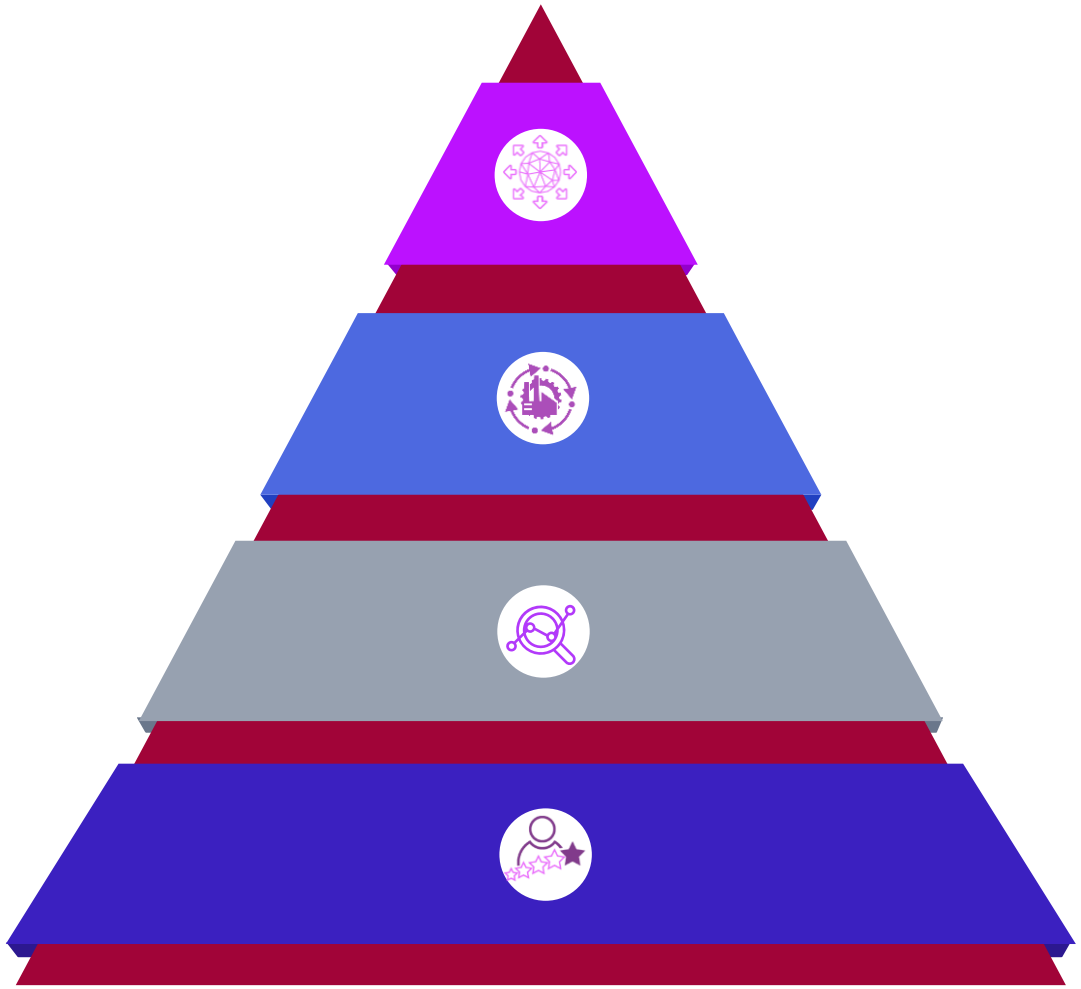
Trust Your Data

R&D, Customer Support, and Sales operations spanning the US, Europe, and the Middle East

“To Open” or “Unveil”

Empowering Smarter Decisions Through Advanced Data Quality

Who We Are



01

Our Vision is to Accelerate AI adoption and reliability by giving engineering and operations teams full confidence in their data.

02

Our Industry-First Approach is a data intelligence company born from the industrial world — not retrofitted from generic IT platforms

03

Our Mission is to build trust in operational data by exposing, quantifying, and enabling improvement of data quality at scale, enabling AI/ML and digital transformation.

04

Our Team is comprised of industrial engineers, data scientists, and software experts who understand the realities of IT/OT issues.

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Companies are Drowning in Bad Data

The Problem

$12.9M	57%	54%	26%
Avg annual Cost of poor data	Poor data quality as biggest barrier	Struggle with Data Integration	Data is fully accessible and usable for decisions

Data Source: MIT Technology Review Insights, Experian Global Data Management Report, Gartner

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Value Delivered Across the Enterprise

Reliability

Prevent unplanned downtime due to misleading signals

Operations

Improve decision-making with verified data

Data Science

Ensure model training uses clean, consistent inputs

Leadership

Prove digital investments are working

Great Decisions Start with Trusted Data

OUR VALUE

1

Trust Your Data
Reveal unreliable signals before they impact analytics or control

2

Reduce Engineering Burden
Automate what was once weeks of manual tag validation

3

Fuel AI with Confidence
Only feed quality-assured data into ML models

4

Accelerate Transformation
Build momentum by removing one of the biggest blockers to AI scaling — bad data

OUR SOLUTION

See what others miss
Act with Confidence

Trust Your Data

What is DataWise?

A powerful, lightweight platform designed to continuously monitor the quality and reliability of operational data

What does it do?

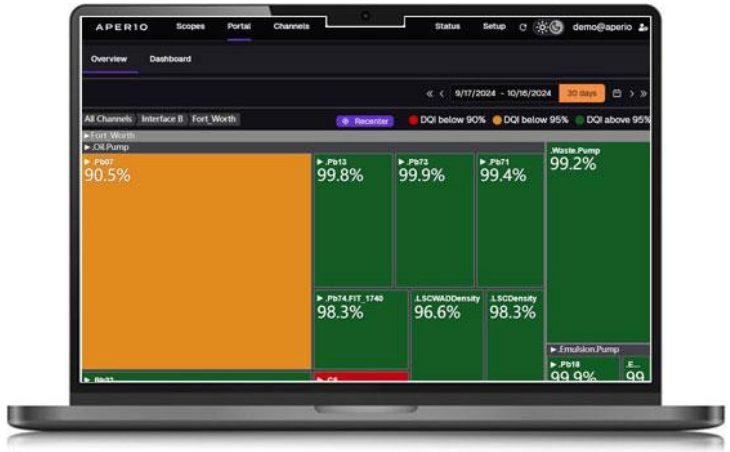
1. Scores data health at the tag, asset, or process level
2. Surfaces hidden anomalies and context
3. Correlates signal behavior to uncover root causes

Who will use it?

Engineers, operators, data scientists, reliability teams, and AI developers

Customer Outcome

Replace guesswork with quantified trust in their OT/IT data



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What, How, Why

DataWise Platform

APERIO
Trust Your Data

WHAT, HOW, WHY

What you Need to Know

Transform Your Business

What We Do?

Provide industrial teams with tools to detect, monitor, and improve operational data quality

How We Do it

- Tag-level monitoring
- Root cause isolation
- Custom dashboards and integrations
- Continuous unsupervised modeling

Why It Matters

- Data is the foundation for every digital initiative
- Bad data = bad decisions, bad models, and bad outcomes
- APERIO is your **Data Trust Layer**

Thank-You

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Appendix

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APERIO DataWise™ Engines

Bad data or sensors can adversely affect data driven decisions in analytics, process or maintenance

APERIO DataWise® engines in Production:

Bad Values – Error status coming from the historian

No Data – Longer than expected time between samples

Flat Line – Sensor continuously reads the same value

Out of Range – Deviation from the normal operating range of values

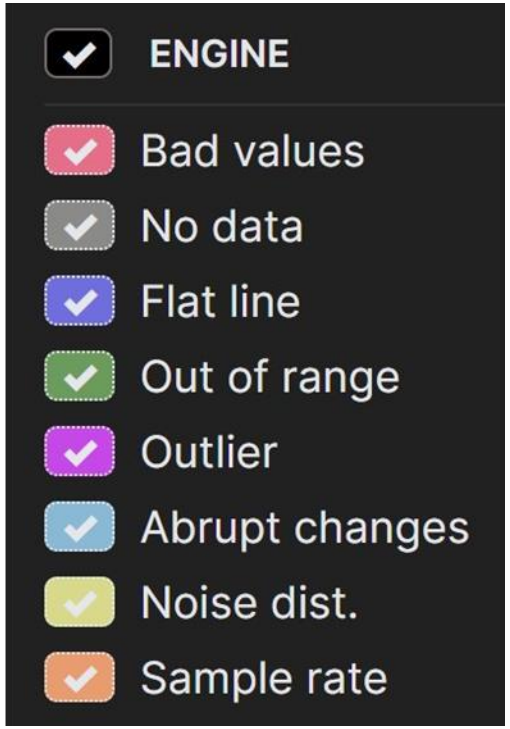
Outlier – Sudden spike after which a signal returns to normal

Abrupt Changes – Sudden persistent high-magnitude change

Noise Distribution – Sudden change in signal noise

Sample Rate – Change in sensor reaction time

Data Quality Index (DQI): An aggregated metric of specified tags indicating the quality of data (lagging indicator)



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Customer Use Cases
Operations

Upholding Environmental Compliance

Validating Input to Carbon Emissions Report

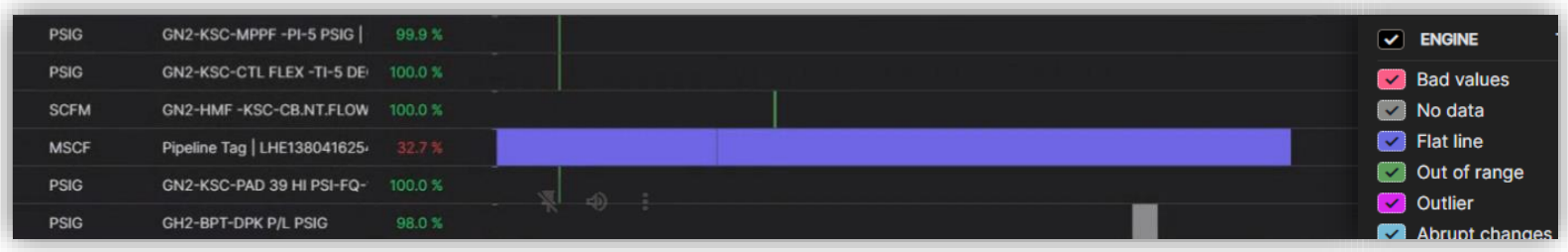
Introduction: Hydrogen production results in significant CO2 emissions.

Challenge: Many companies have a corporate mandate to report accurate emissions.

Current methods include a spreadsheet to validate data that is labor intensive and error prone.

Solution: APERIO DataWise uses unsupervised machine learning to identify periods of poor quality for data input to environmental reports, such as a flat lined critical instrument, that result in erroneous reporting metrics.

Results: DataWise reduces the risk of losing 'License to Operate' and potentially $100k in fines.



> *"We discovered that when the technology we deploy requires a lot of human intervention, it's a heavy lift. […] When we realized we needed some tools to help us solve the data quality challenge, we were very sensitive to that. […] One of the most important criteria for the tool and the technology is fully unsupervised machine learning. […] Technologies that could not do that just didn't make the cut."* ***Director, Data Integrity and Strategy***

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Reducing the Risk of Methane Leaks

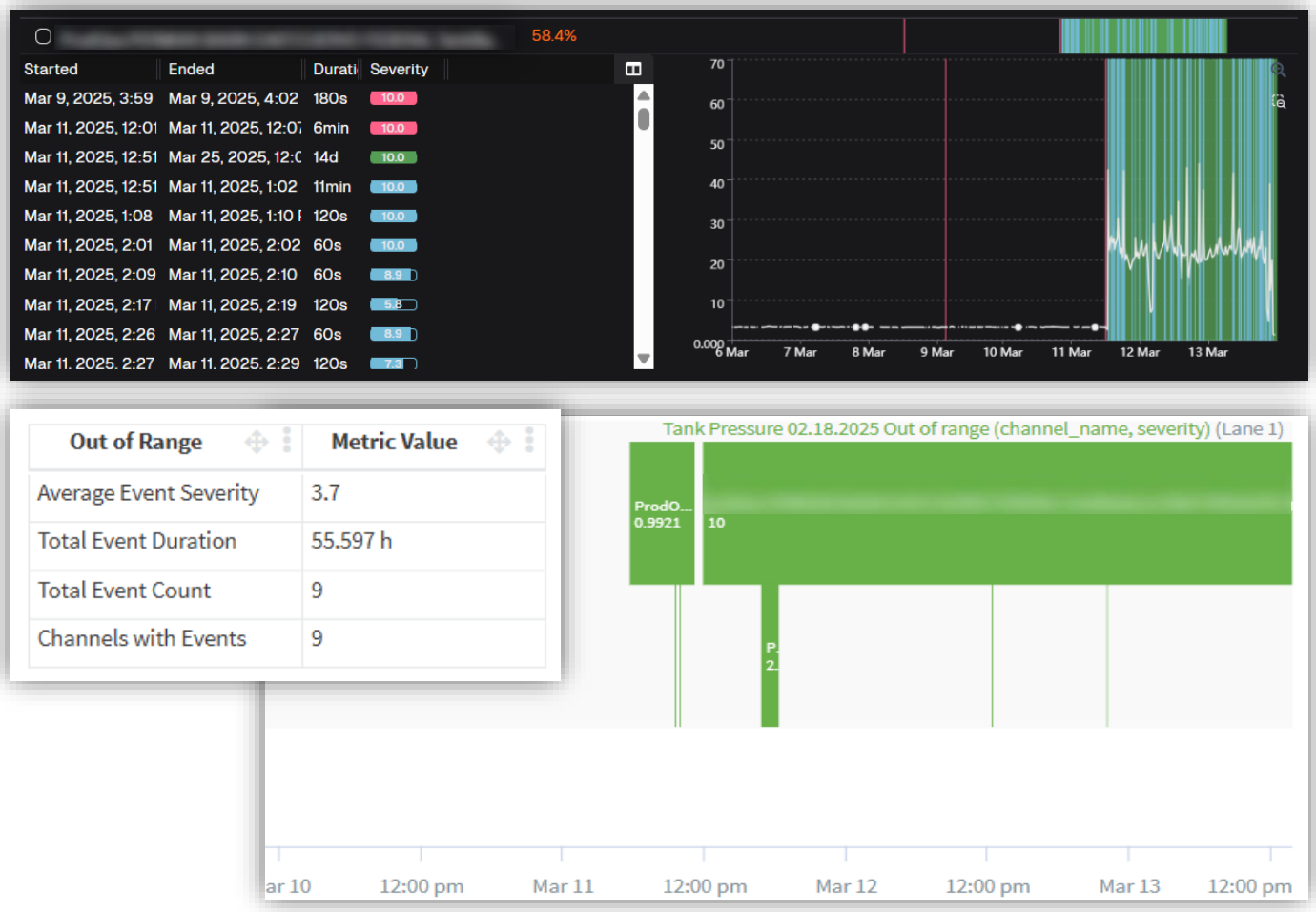
Improving the Accuracy of Leak Detection Monitoring

Introduction: An energy company uses Seeq to identify methane emissions from low-pressure storage tanks (<1psig) at ~225 upstream oil and gas facilities by monitoring pressure.

Challenge: Data quality issues reduce the efficacy of monitoring efforts and create opportunity for undetected leaks.

Solution: DataWise detects various data quality events (DQE) across all pressure monitoring devices in near real time without any user effort. DataWise for Seeq integration creates capsules for each DQE, enabling email notifications and contextual root cause analysis.

Results: More effective use of low-cost pressure monitoring devices on older tanks that cost $500k per tank.



Reducing the Risk of Winter Power Outages

Enhancing the Quality of Freeze Protection Monitoring

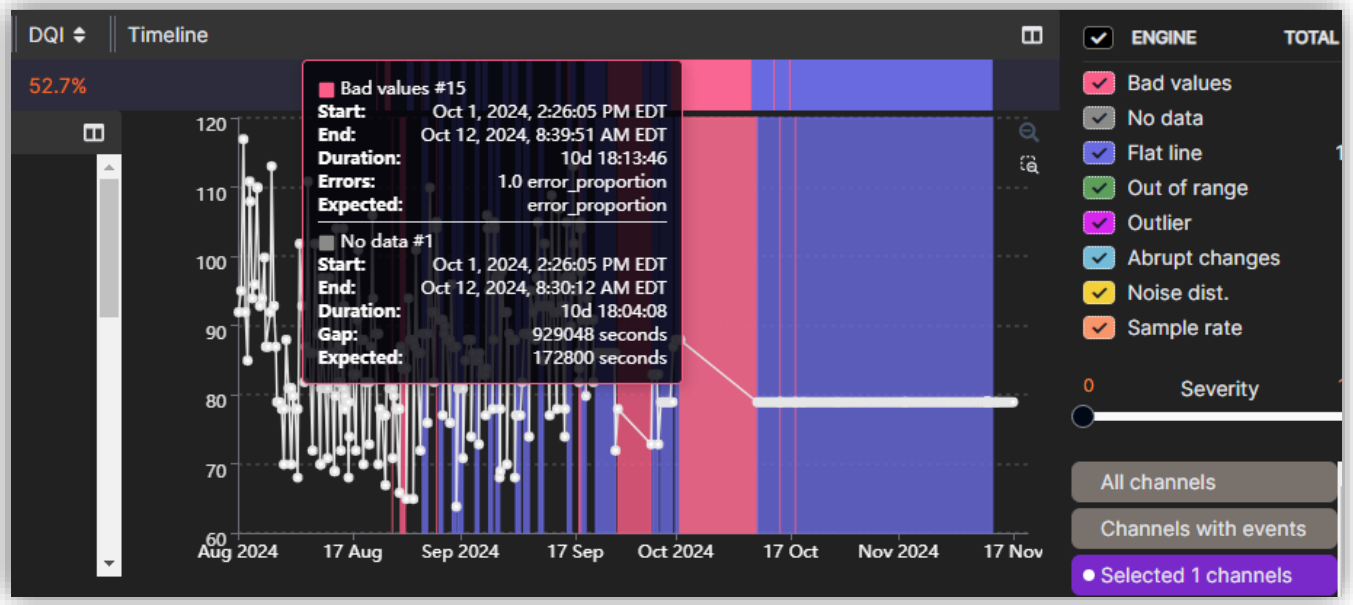
Introduction: A leading power generation company implemented a winter weather preparedness program to prevent unplanned outages. This includes monitoring the temperatures and heat trace currents of critical instrumentation.

Challenge: Effective monitoring is inhibited by data quality issues resulting from sensor failure or connectivity issues across the data architecture.

Solution: Deployed the APERIO DataWise SaaS solution on AWS to detect data quality events on more than 4,000 freeze protection signals using unsupervised ML engines.

Results: Root cause analysis of data quality events prompted work orders to restore 100% of critical sensors in advance of winter weather at a nuclear facility.

Reduced the risk of up to $4mil EBIDTA loss from unplanned outages.



> *"The end goal is to be able to say we're monitoring 90% or 100% of [your site's instrumentation] because your data is good. We have a lot of alarms that come in due to bad quality data or erratic data."* ***Monitoring Center Engineer***

Protecting Reboiler Health

Unsupervised Monitoring of Critical Reboiler Process Values

Introduction: Recovery boilers are essential to both energy generation and chemical recovery at a leading pulp and paper company.

Challenge: Recovery boilers operate in one of the harshest industrial environments. Over time, the reliability of sensor data—used to manage combustion, pressure, temperature, and flow—can degrade and affect process control or inhibit detection of equipment issues.

Solution: Unsupervised analysis of reboiler process values in APERIO DataWise identified data anomalies indicative of sensor degradation or failure in near-real time.

Results: Mechanical losses of approximately $600k were avoided by acting on DataWise results.

> *"If real [process values], these are excessively high temperatures—reaching the upper limit of the PI tag configuration. […] It's possible the tubes are plugged or not receiving sufficient cooling steam."* ***Senior Engineering Fellow***

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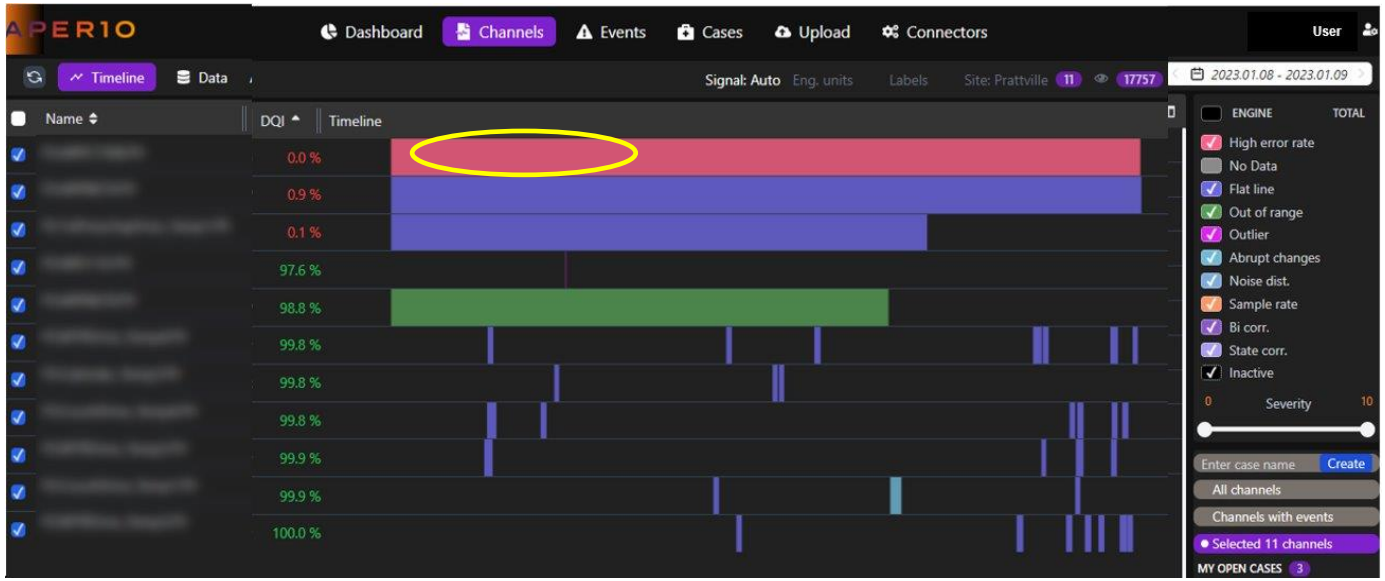
Critical Instrument Health: Identification of Dead Tags

Challenge:
A major industrial faced unreliable sensor data from aging instrumentation, undermining analytics and predictive maintenance.

Solution:
APERIO flagged dead or low-performing tags in near real time using DQI scores, helping the team identify non-functional instruments early.



Business Value:

- Justified sensor upgrades with objective data quality metrics
- Enabled units to operate closer to optimal performance
- Reduced risk of basing decisions on faulty data
- Reduce data historian license cost > $100k/year by eliminating dead tags.

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PAT Health Monitoring – Ensuring Critical Analyzer Performance

Challenge:
Chemical production relies on costly PAT instruments to monitor process components. These analyzers frequently fail and require lab comparisons to validate their readings.

Solution:
APERIO's Bad Value Engine flagged a critical PAT failure by detecting data transfer issues between the equipment and the end-user tag—enabling fast response.

Business Value:

- Identified analyzer failures in real time
- Increased trust in quality-critical sensor data
- Reduced off-spec production and rework costs an approximate $5M / annual loss.

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Customer Use Cases

IT

OT Network Monitoring: Interface Health & Heartbeat Detection

Challenge:
Effectively manage hundreds of interfaces transmitting data from the field.

Solution:
APERIO's "no data" engine coupled with heartbeat monitoring detect outages early and at scale, enabling the team to correct configurations and restore data flow before it impacted operations.

Business Value:

- Prevented data loss and reduced downtime risk
- Improved visibility into interface health across sites
- Boosted data reliability for operations and analytics

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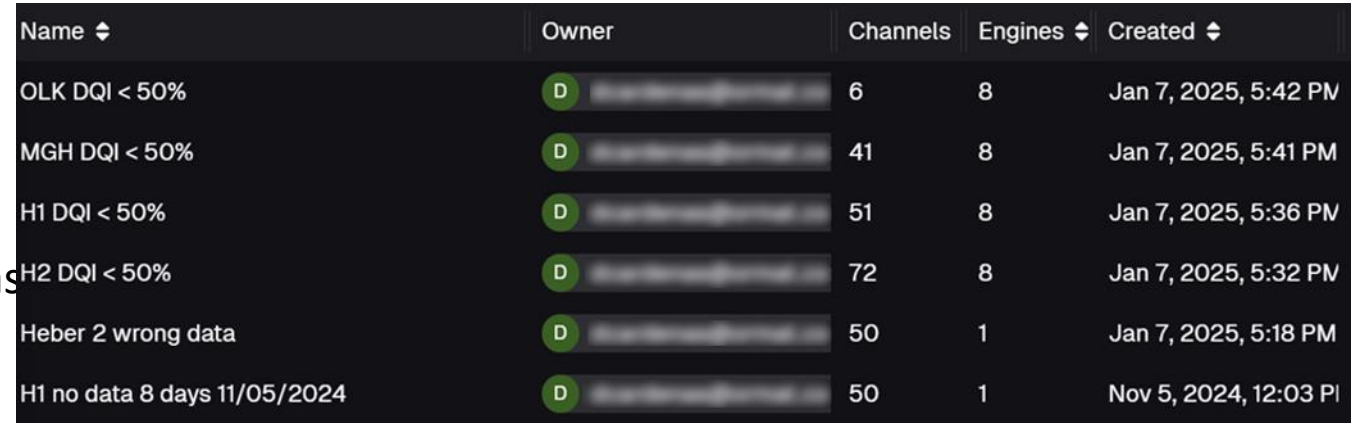
Data Migration Validation: Ensure Accurate Tag Transfer

Challenge:
Data Migration to a new time-series platform.
Manual work results in errors losing historical continuity

Solution:
Using APERIO DataWise, the customer validated tag quality post-migration, ensuring transferred data was accurate, useful, and correctly connected.



Name	Owner	Channels	Engines	Created
OLK DQI < 50%	D	6	8	Jan 7, 2025, 5:42 PM
MGH DQI < 50%	D	41	8	Jan 7, 2025, 5:41 PM
H1 DQI < 50%	D	51	8	Jan 7, 2025, 5:36 PM
H2 DQI < 50%	D	72	8	Jan 7, 2025, 5:32 PM
Heber 2 wrong data	D	50	1	Jan 7, 2025, 5:18 PM
H1 no data 8 days 11/05/2024	D	50	1	Nov 5, 2024, 12:03 PM

Business Value:

- Ensures historian data has operational relevance
- Surfaces and removes duplicated or misconfigured tags
- Enables structured investigation of low-quality channels

Outcome:
The customer used DataWise to clean up their historian, eliminating faulty tags and driving follow-up with plant controls teams on low-DQI channels—improving both data quality and operational trust.

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Data Consistency: Validating Data Across Systems

Challenge:
During a large-scale migration from AVEVA PI to AWS Cloud, inconsistencies emerged between original and target data streams. Since only a subset of data tags had full validation, drops or partial data loss between the systems went undetected—risking data integrity for analytics and compliance.

Solution:
APERIO's Consistency Engine monitors paired data streams across source and destination historians. It flags anomalies when one system shows data volume dropouts, partial loss, or sampling imbalances compared to its counterpart—without requiring access to raw values.

Business Value:
- Verifies end-to-end data fidelity during system migrations
- Detects silent data dropouts that value-only checks might miss
- Enables faster root cause analysis between source and cloud systems

Outcome:
The engine helps ensure that time-series data transferred from on-prem systems like AVEVA PI to cloud platforms (e.g., AWS Timestream or S3) remains complete and consistent—empowering teams to trust their cloud analytics stack.

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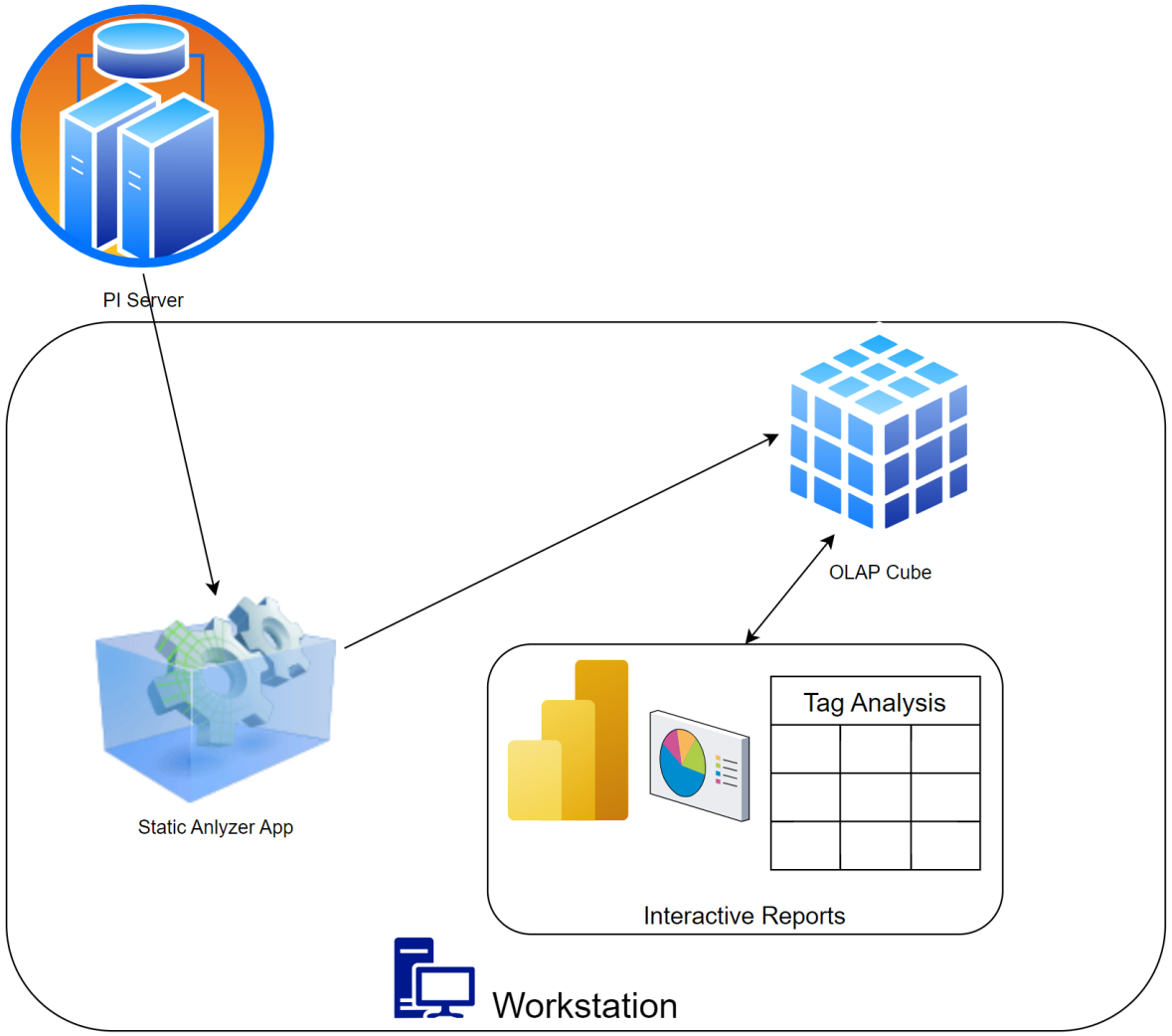
Static Analyzer: Evaluating PI Data Health

- Identify and recover tags no longer receiving data
- Identify tags being overly compressed, thus losing information
- Identify tags being under compressed, thus using excessive resources
- Identify where tags are being used by specific applications
- Identify duplicate tags, thus freeing resources and removing ambiguity
- Tag attribute quality assessment (meta data quality assessment)



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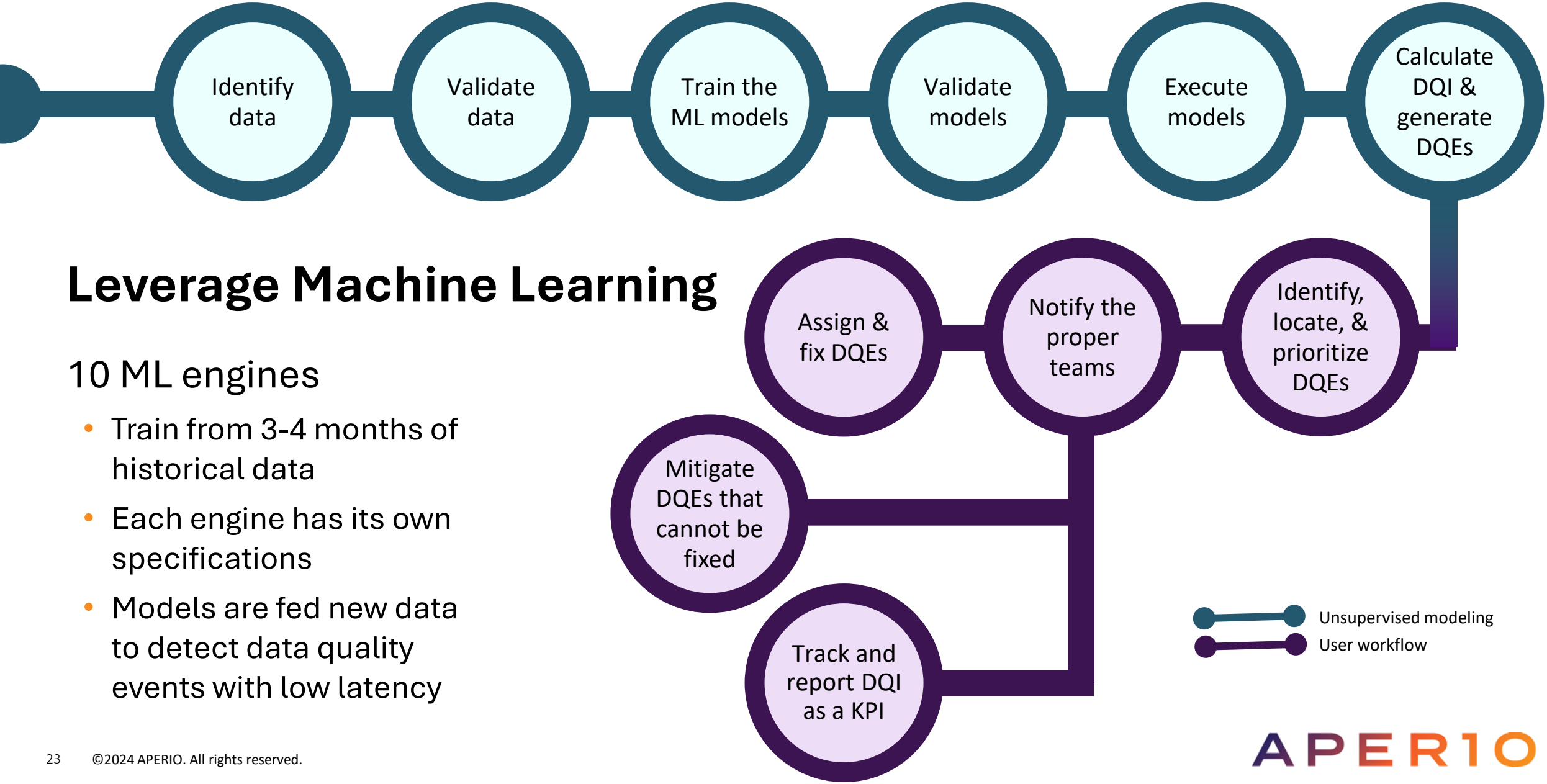
Leverage Machine Learning



10 ML engines

- Train from 3-4 months of historical data
- Each engine has its own specifications
- Models are fed new data to detect data quality events with low latency

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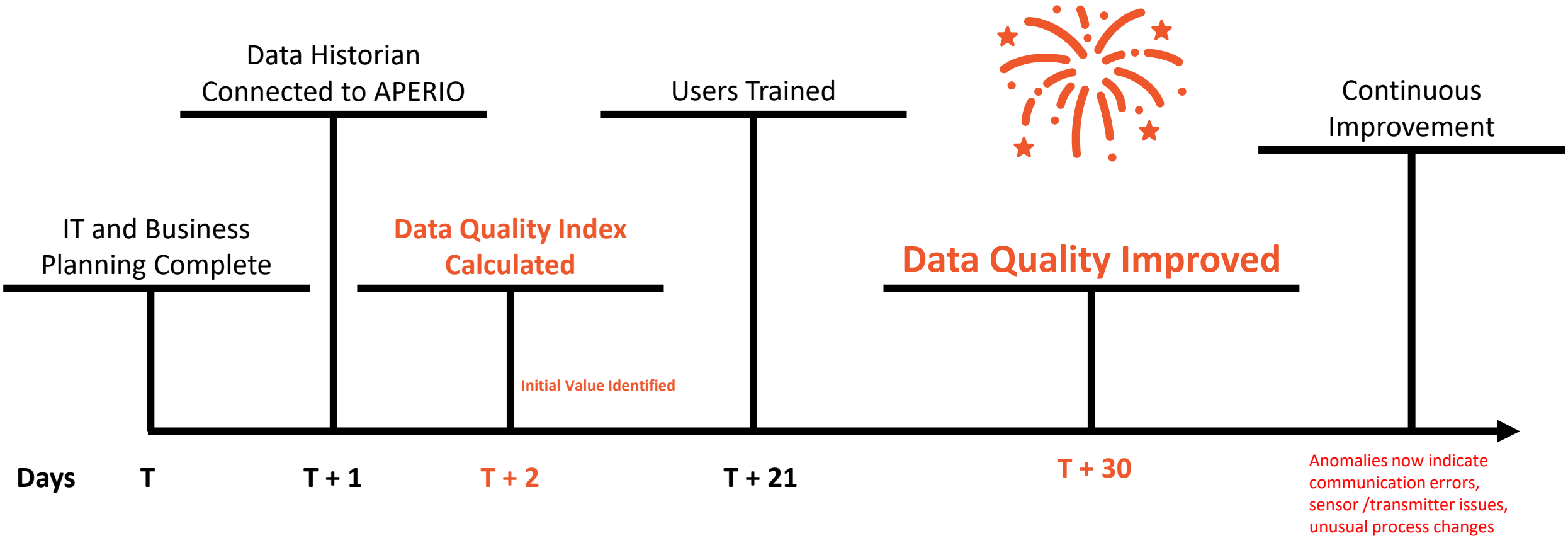
Fast Time to Value



T = Kickoff,
T + n = Time to value

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