AVEVA PI WORLD

Using event frames to drive next generation process management

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Eastman: A global industry **leader**

- Fortune 500 specialty materials company with 2020 revenue of ~$8.5B
- Global manufacturer and marketer of advanced materials and specialty additives
- Operates four business segments
- Global team of ~14,500
- Serving customers in >100 countries

Improving process monitoring through operations transformation

EASTMAN

Challenge

Provide an exception-based, real-time monitoring framework to empower operators to take ownership of, communicate, and document issues in the plant

Solution

Incorporated templated process monitoring analytics throughout PI AF with Event Frames to organize and consolidate exceptions from a wide variety of PI Vision monitoring dashboards

Benefits

Enabled improvements to reliability, yield, catalyst usage, energy efficiency, safety and environmental metrics, and provided a platform to implement Machine Learning optimization results directly to operators

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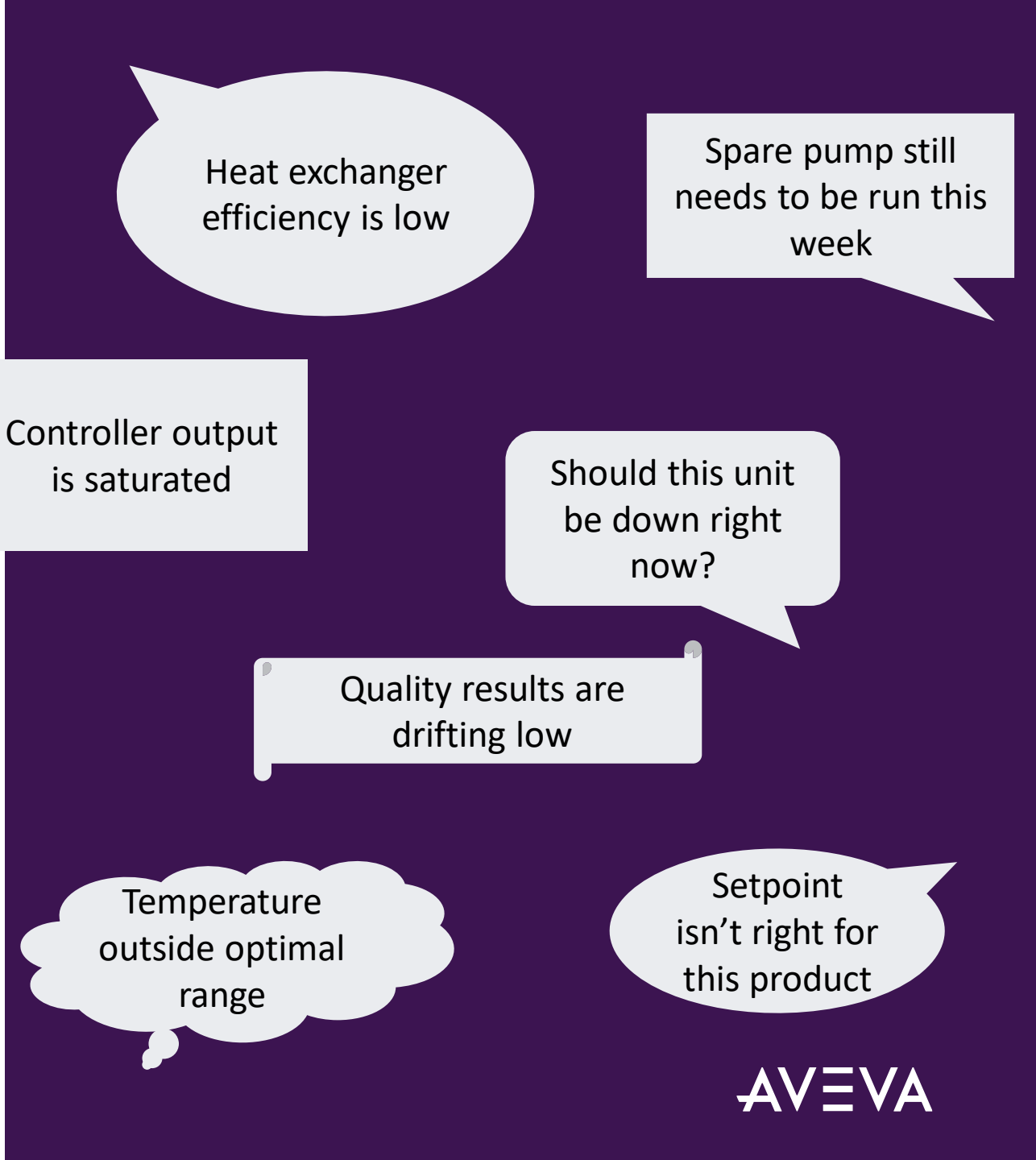
Challenge: Operational Alert Tool Overload

- Operators had alerts (not DCS alarms) in too many different tools, with many nuisance alerts.
- We want to ensure that each alert has a true action.
- Toolset needed to
  - Monitor the process
  - Identify significant events using complex logic
  - Handle dynamic limits
  - Notify responsible parties and drive action
  - Have a streamlined, modular process for disparate chemical processes



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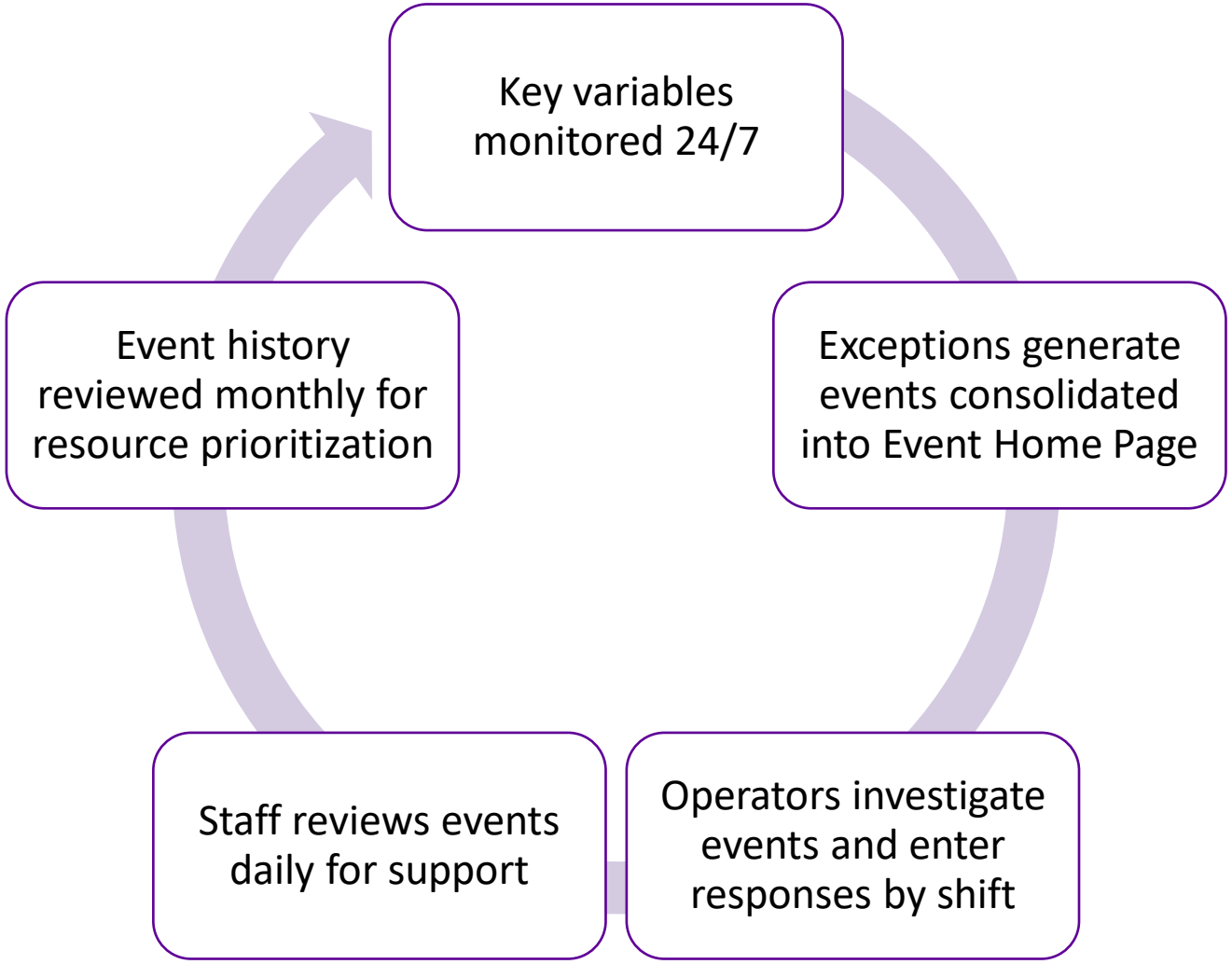
Implemented a full alert management system with AF Events, PI Vision, and Power BI



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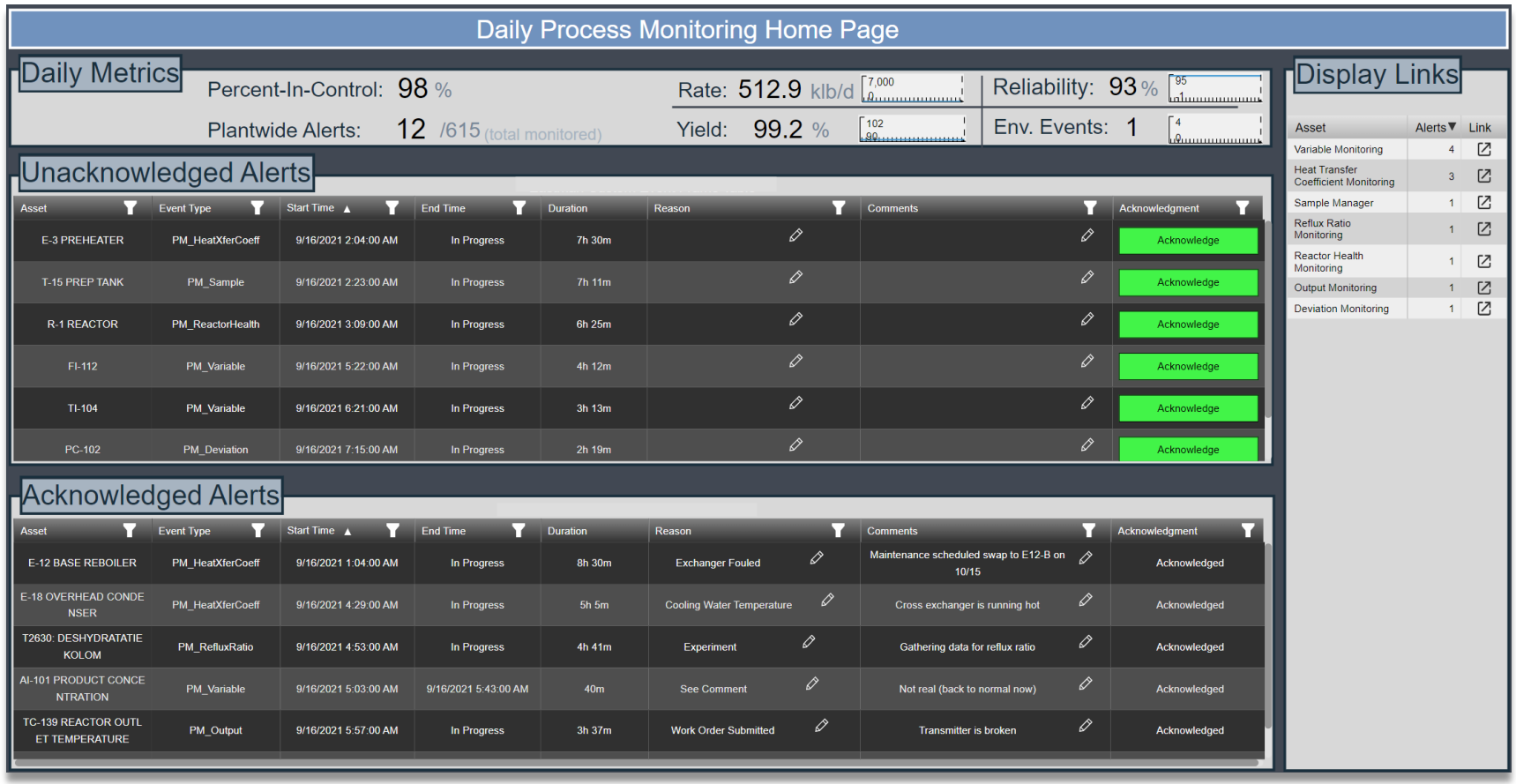
Consolidate alerts in Plantwide Home Page (Level I) for review and documentation



Consolidates Event Frame alerts from all monitoring dashboards and sorts them into Acknowledged vs Unacknowledged

Operators assign reasons, comments, and acknowledge new event frames by end of shift

Events reviewed by day staff in morning meeting

Operators can see alert totals for specialized monitoring dashboards (Level II) and open them directly from Display Links

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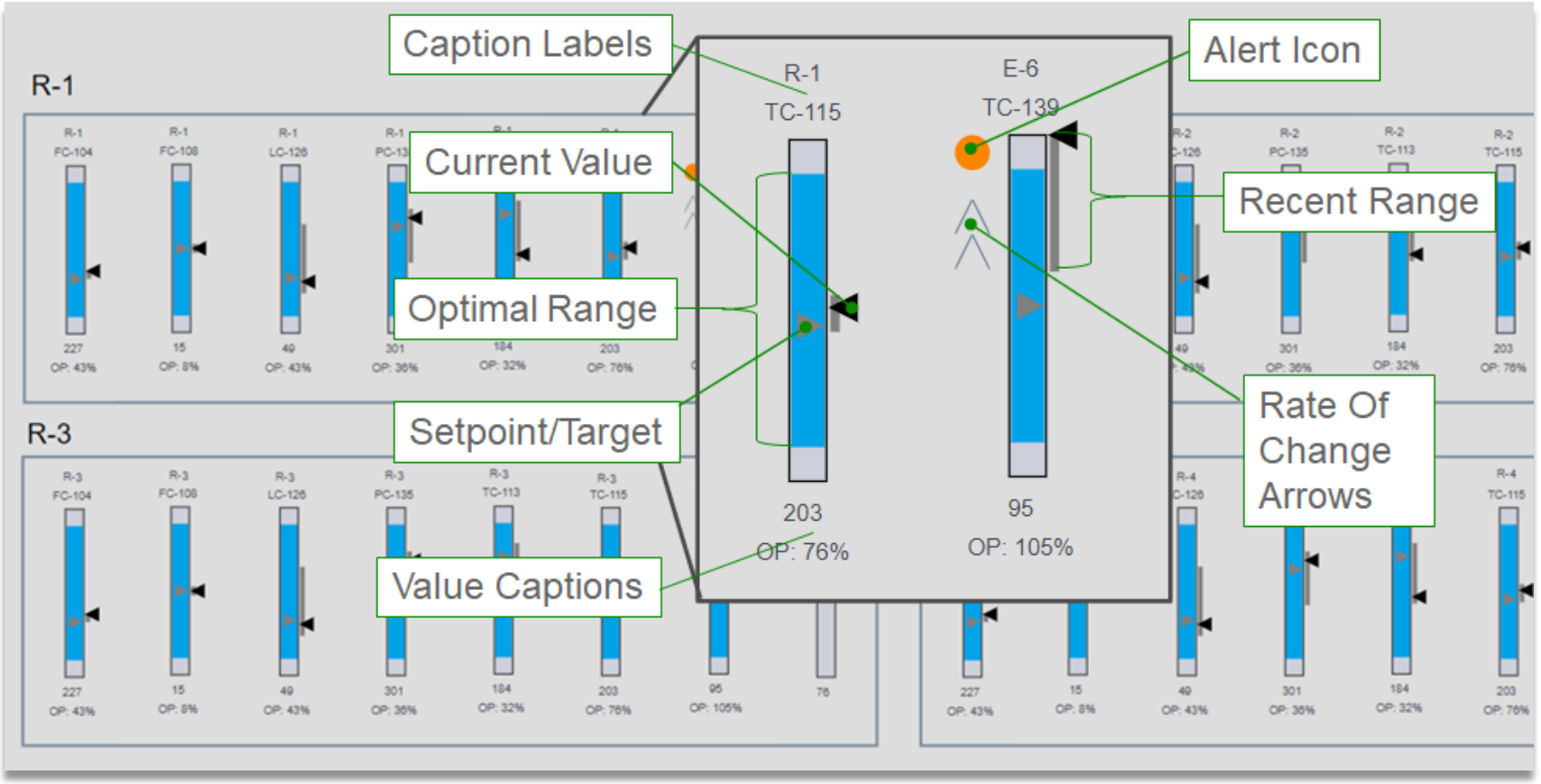
Monitor key event parameters in Gauge Dashboards (Level II) for event prevention and real-time optimization



Open 24/7 on dedicated screens for operators to view the real time status of monitored variables

An event frame is generated if an orange circle alert is not resolved during the shift

Collections are used to populate the dashboard utilizing variable base templates

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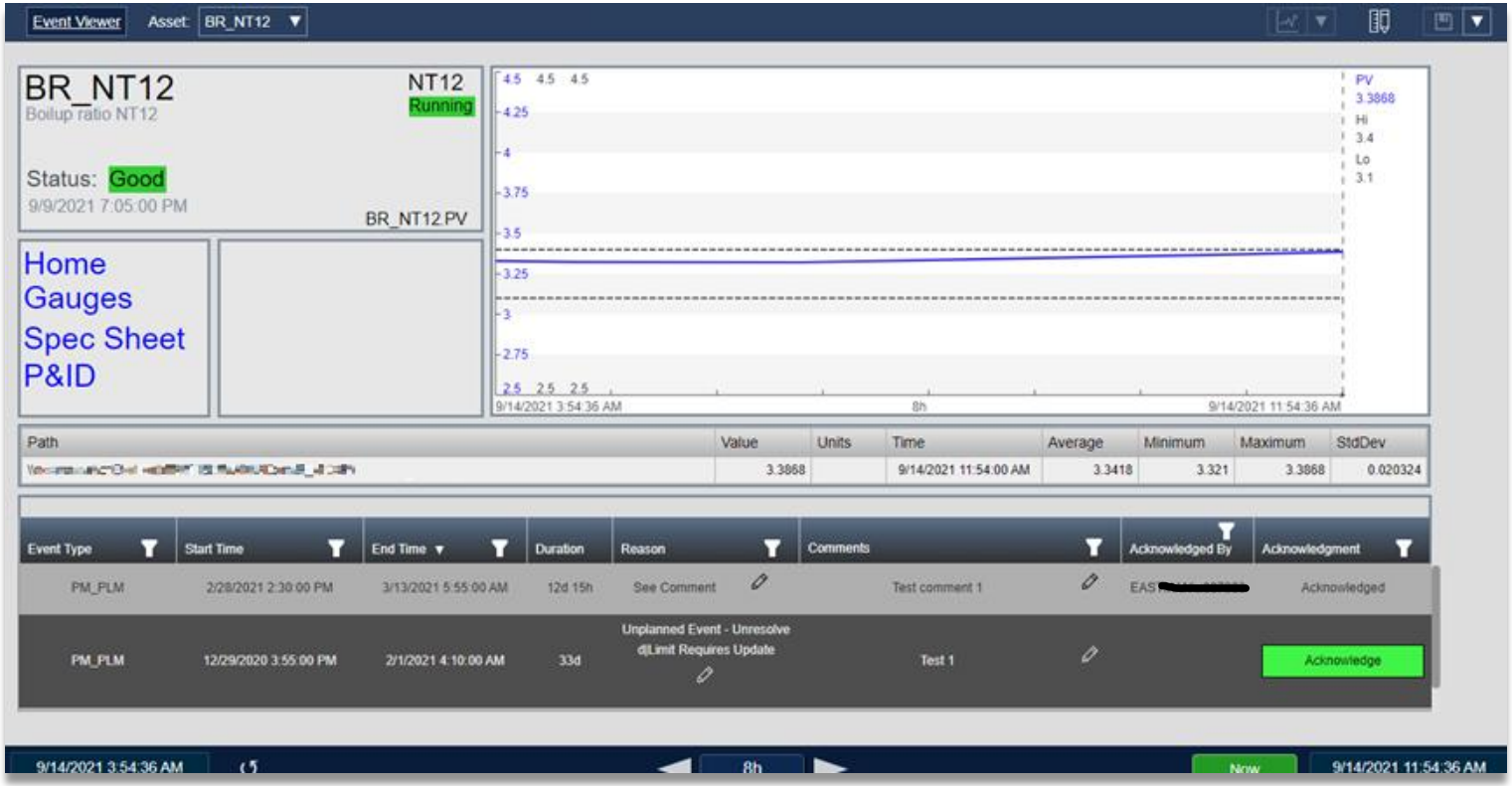
Investigate individual events by drilling down to Variable Event View (Level III) for history and troubleshooting



Additional attributes can be added to the trend for troubleshooting

Time range of trends can be applied quickly from current or historical events

Navigation to this display is integrated throughout Level II's

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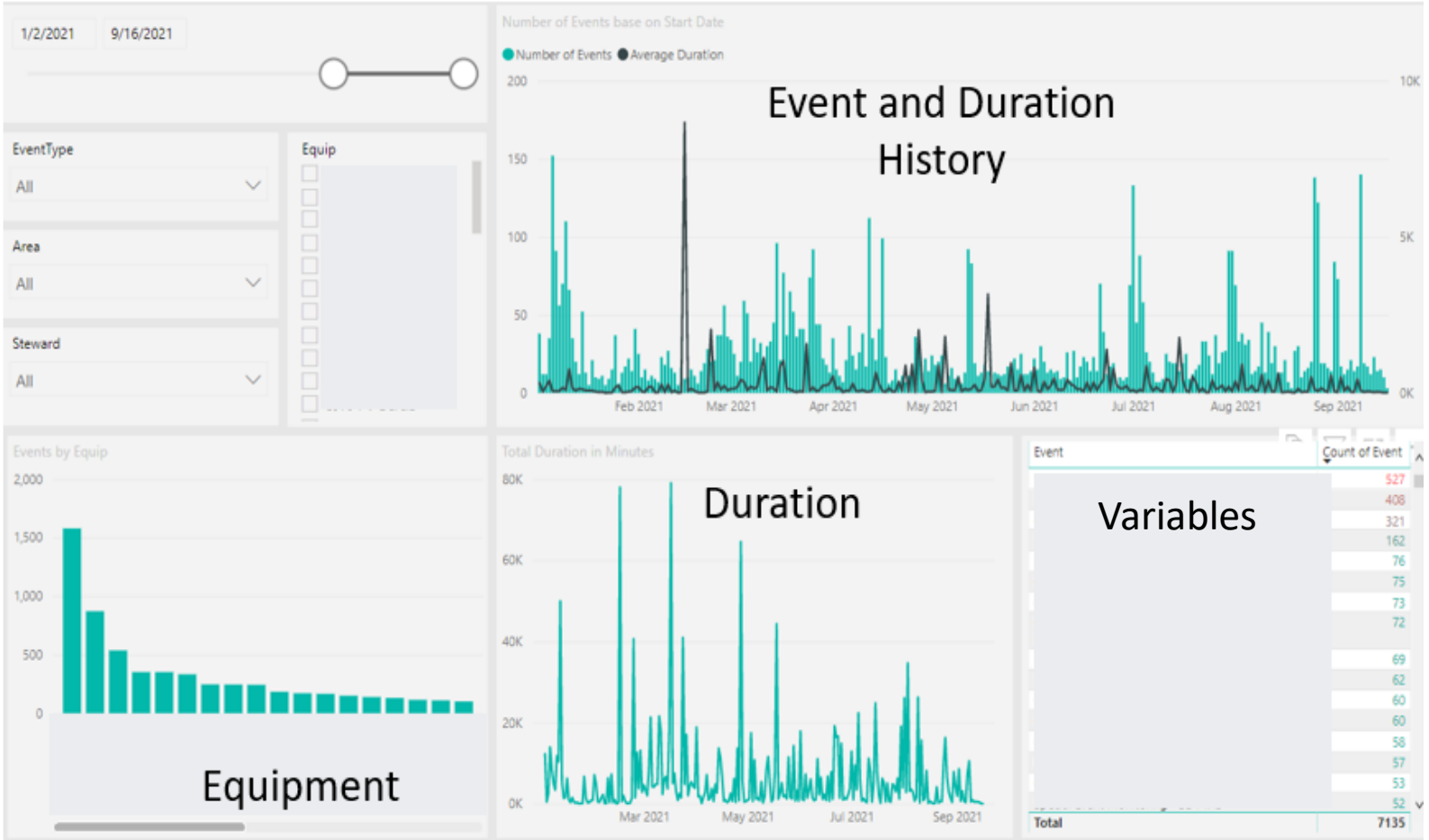
Review history of events in Power BI for better resourcing decisions



Historical events can be filtered by:

- Event Type
- Area
- Steward (Responsible person)

Incorporated into monthly staff meetings to identify reoccurring or severe events for resourcing and prioritization

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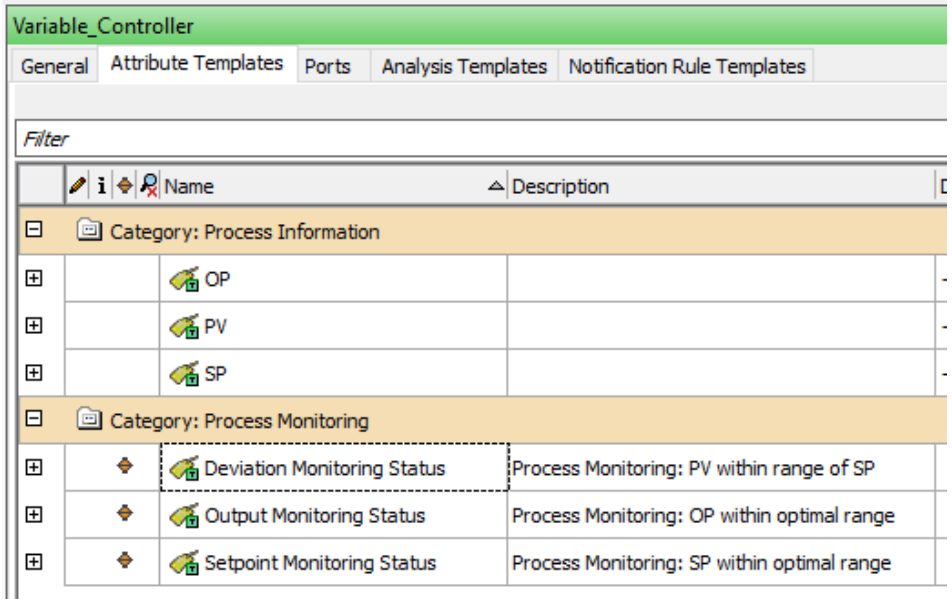
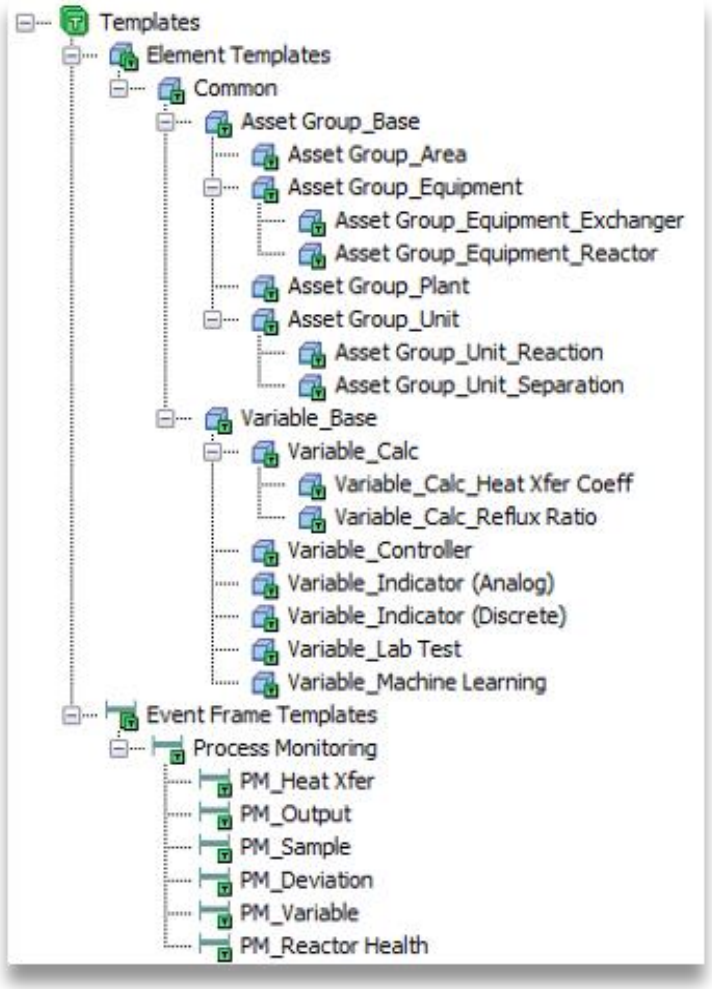
Implementation details from Asset Framework Templates to drive standardization and scalability



Status analytics utilize dynamic limits, deadbands, equipment state, time delays, and conditional logic to ensure alerts are meaningful to operators



Rolls up alert counts for each type of monitoring

Variable templates contain respective PM Status and Event Frame analytics

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Achieved sustained improvements

- Hard Value
  - Reliability gains from downtime and maintenance monitoring
  - Yield improvement from real-time yield optimization monitoring
  - Catalyst usage optimized in real-time
  - Improved energy efficiency, safety and environmental metrics

- Soft Value
  - Improved accountability for equipment optimization
  - Better communication of activities between shifts
  - Historized documentation of issues for prioritization and tool maintenance
  - Provides a natural method to forward machine learning insights directly to operators

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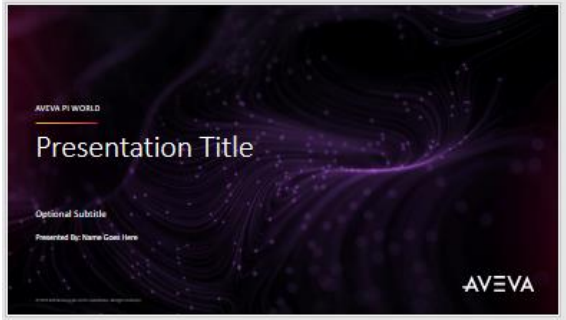
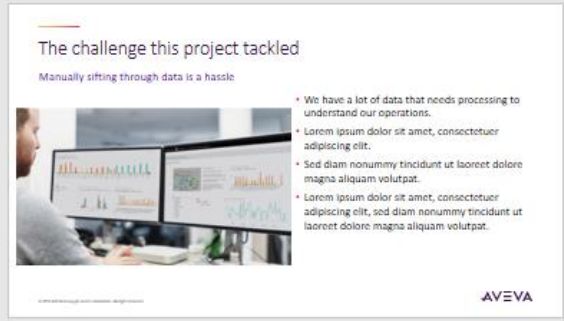
Typical presentation — order of slides



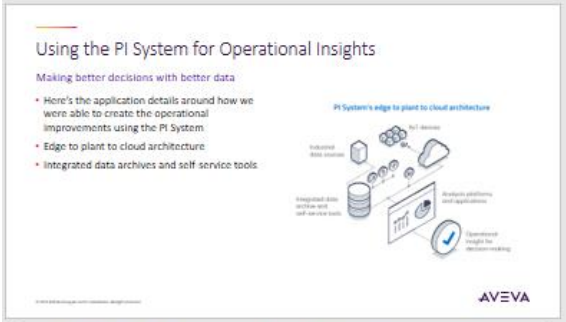
1 Title

2 About Your Company

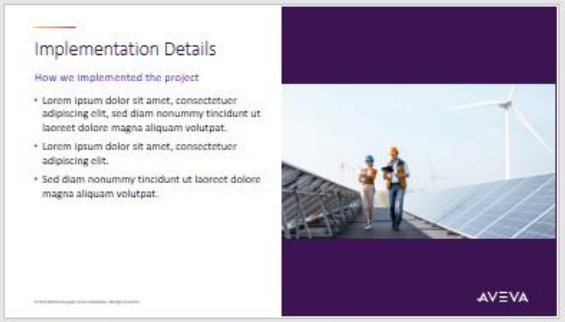
3 Challenge-Solution-Benefits



4 Business Challenge



5 AVEVA System Application



6 Implementation Details

7 Impact / Savings

8 Key Stakeholder Quote

9 Speaker Contact Me

10 Thank you!

11

12