



AVEVA WORLD

Tuesday, April 8, 2025

Building a Digital Core of Operational Technology in Power Generation

AVEVA World 2025



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Tennessee Valley Authority

(TVA)



Tennessee Valley Authority (TVA) is the largest public power provider in the United States, serving more than 10 million people across the seven-state region. In addition to energy production, TVA also provides environmental stewardship, managing 230,000 acres of public land and 40,000 miles of rivers, streams and tributaries, 16,400 transmission line miles and helping attract good jobs to communities across the region.

Nuclear | Coal | Natural Gas | Hydroelectric | Solar | Wind | Battery Storage



Accenture Federal Services

(AFS)



Accenture Federal Services (AFS) is a consulting firm that leverages the expertise and innovative solutions of Accenture's commercial business to deliver cutting-edge technology and strategic solutions to federal agencies. We partner with government clients to drive mission success, enhance operational efficiency, and implement transformative initiatives.

Presenters



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(TVA)



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(TVA)



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TVA had an aging historian that did not align with long-term IT & business objectives



Powered by the AVEVA PI System, TVA & Accenture delivered a digital platform to help foster innovation in operational teams

Business Challenges

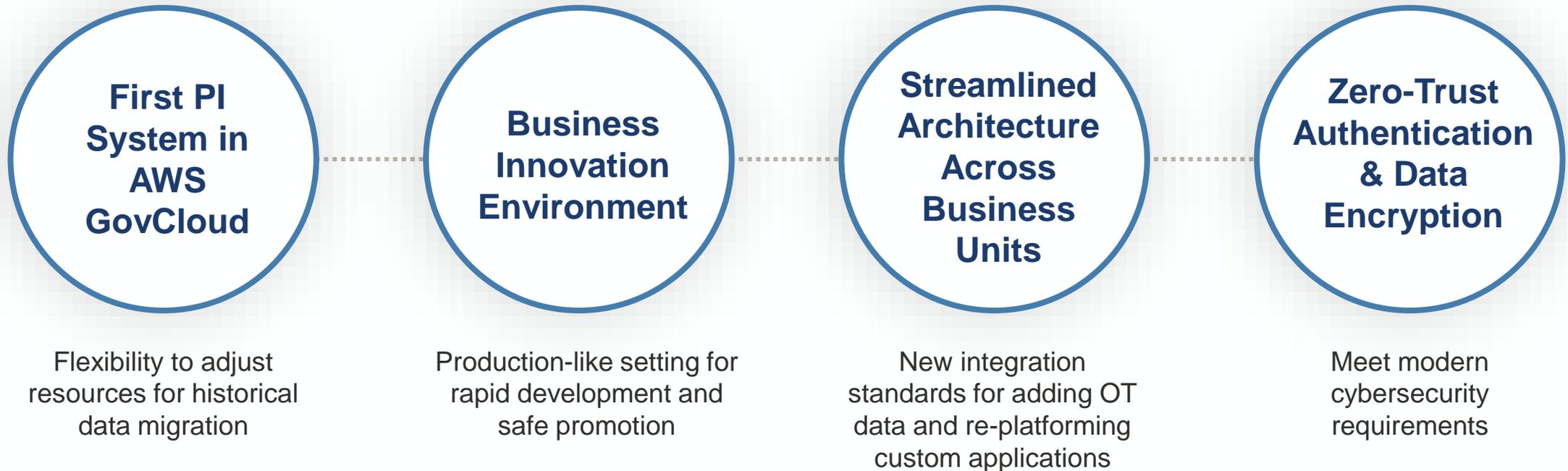
- Data Navigability
- Data-to-Insights Gap
- Siloed Business Processes



IT Challenges

- Compliance Gaps
- Network Topology & Infrastructure Complexity
- High Total Cost of Ownership

The AVEVA PI System powered a digital platform that helps fosters invention



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We're building a Culture of Innovation within Operational Teams

01

Speed to Value

Agile delivery prioritizes speed to value

- Open early access to Innovation Environments
- Utilize early adopters
- Integrate knowledge from silos to create fleet-wide models
- Capture & report on new value

02

Radical Collaboration

Radical Collaboration connects IT, OT, and business

- Engage users as development drivers
- Cultivate PI System Champions throughout the organization
- Involve future system owners early to speed ownership transfer

03

Self-Service Capabilities

Self-Service capabilities empower users to become owners

- Create a self-organizing user community
- Provide ample training and resources
- Co-create asset hierarchies with the business for optimal data organization and analytics

04

Asset Health

The PI System acts as a foundation for Asset Health

- Enable standardized views for asset comparison & decision-making
- Expand upon condition-based monitoring & notifications from repeatable assets
- Enable operators, engineers, & plant mgmt. to independently derive insights from data

Enhanced data accessibility through the PI System has driven progress in 3 key areas:



Operational Performance



Asset Reliability

Compliance



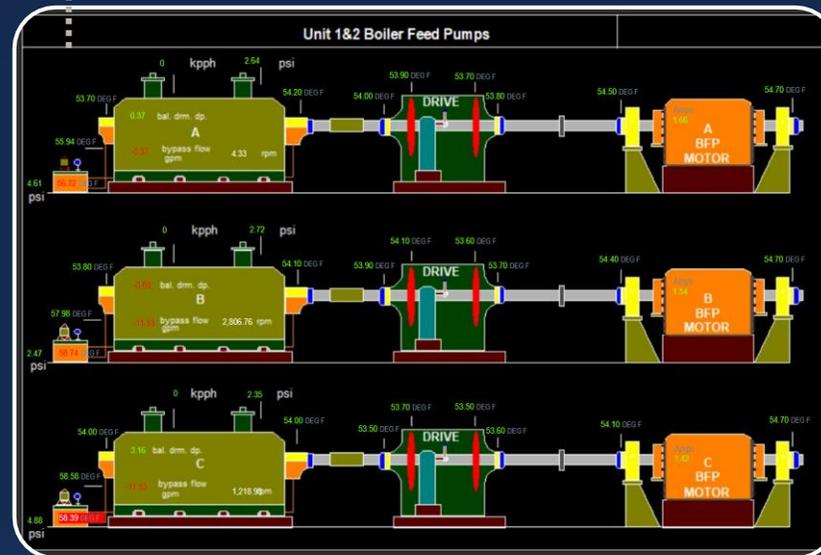
Enhanced data accessibility through the PI System has driven progress in 3 key areas:

Operational Performance

➤ Operational Efficiency

➤ Process Optimization

➤ Minimize Unplanned Downtime



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Enhanced data accessibility through the PI System has driven progress in 3 key areas:

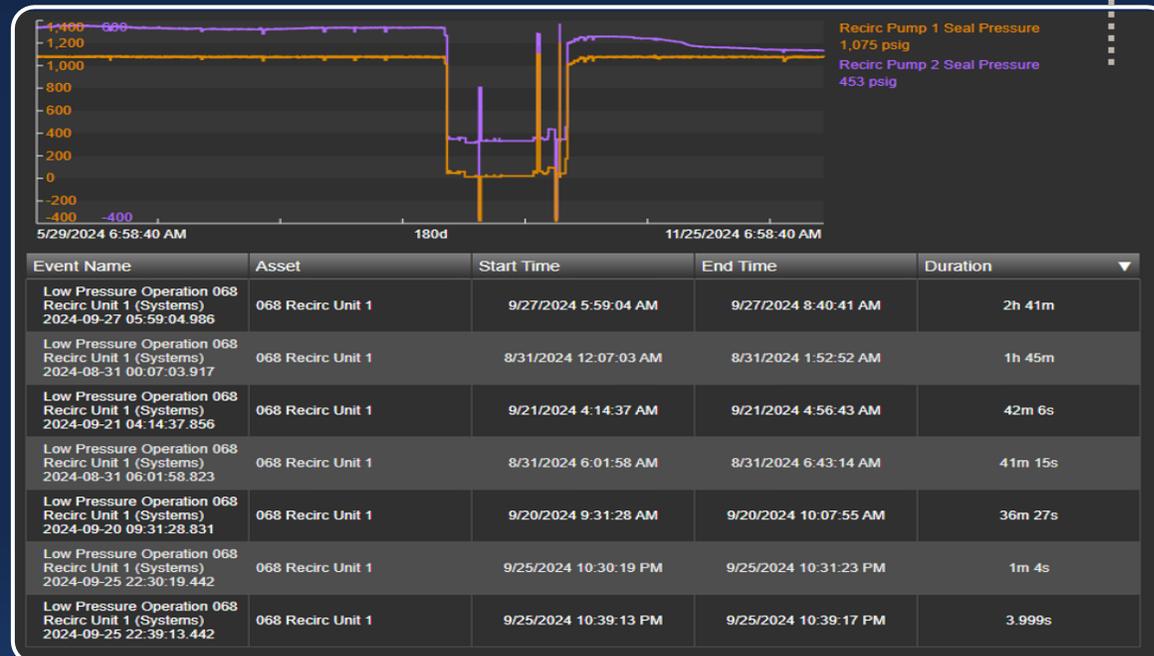


Asset Reliability

> Early Failure Identification

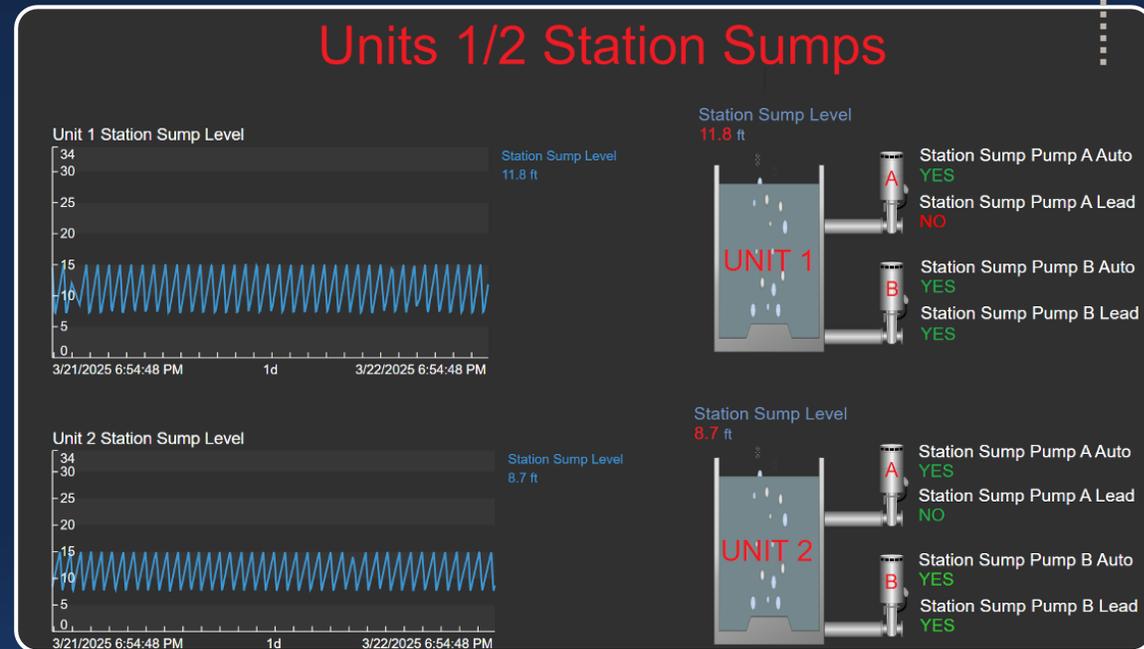
> Anomaly Detections

> Investment Planning



Enhanced data accessibility through the PI System has driven progress in 3 key areas:

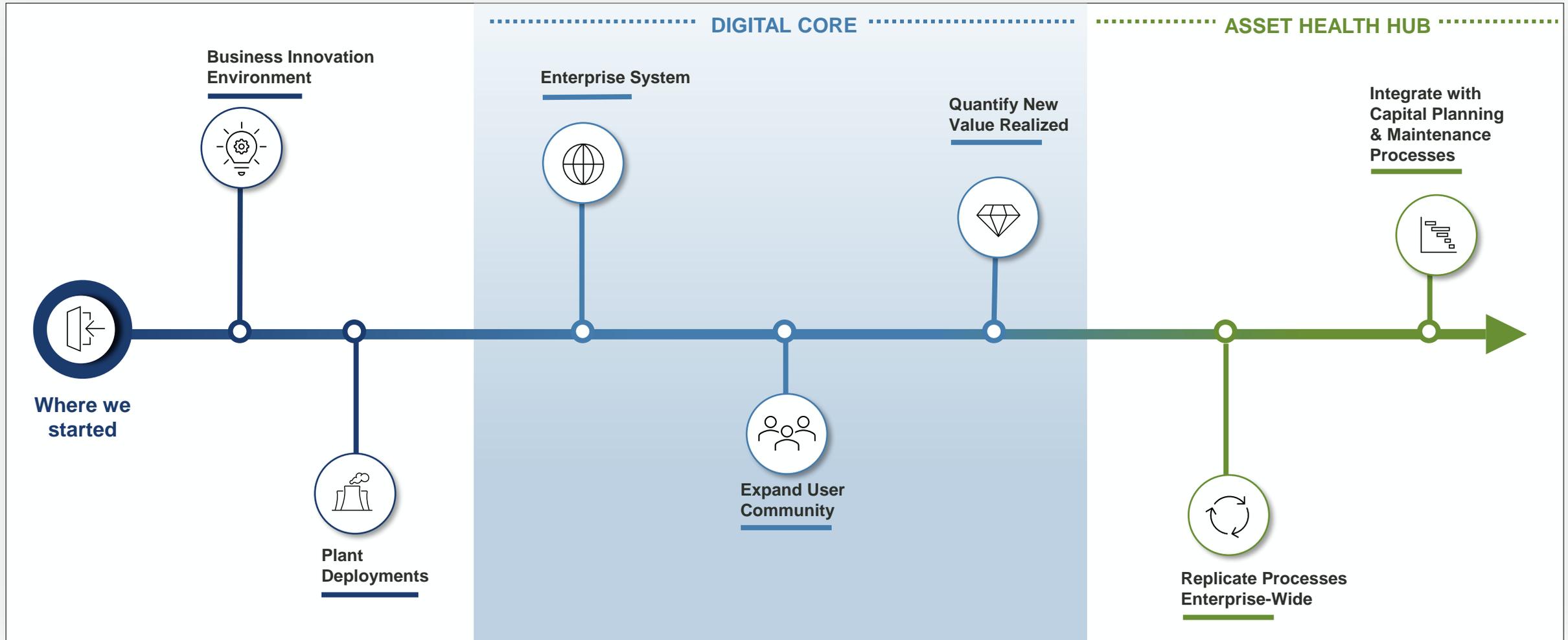
Compliance



> Environmental Compliance

> Safety Compliance

Delivering the Digital Core sets the foundation for the Asset Health Hub



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TVA & AFS establish a data foundation enabling an Asset Health Hub for Operations

Challenge

- Insufficient visibility into operational technology (OT) data across the Enterprise resulting in productivity loss
- Point solutions & siloed tribal knowledge of asset performance monitoring & analytics
- High cost of ownership from custom-built and end-of-life historians

Solution

- Deployed AVEVA™ PI System™ organizing OT data into a digital twin of physical facilities
- Created a network of Change Makers across the Enterprise to drive continuous innovation

Results

- **Scalable navigation of assets through 250+ unique asset models developed in the asset hierarchy across the enterprise (and growing)**
- **300+ members in our PI System user community**
- **Modernized architecture enabling rapid scaling of environments for optimized cost, performance, & cybersecurity compliance**

