



Nutrien – Powered by AF

Bob McIntyre – Nutrien
Heather Quale - Mera



Agenda



Heather Quale

President
Mera



Bob McIntyre

Senior Manager, Process Control
Nutrien

- Introduction
- Leveraging PI in the Enterprise
- Develop Organizational Capability
- Leverage Partner Ecosystem
- Wrap-up and Q&A



- Nutrien is the world's largest provider of crop inputs and services (potash, nitrogen, phosphate, retail).
- Formed Jan 1, 2018 as a “merger of equals” between PotashCorp and Agrium.
- Nutrien plays a critical role in **Feeding the Future** by helping growers to increase food production in a sustainable manner.



- Mera is a team of engineers and technical specialists with diverse expertise that provide services across many different industries on a global level.
- We work with our clients to leverage their operational data to optimize operations to deliver improved financial performance in a safe and sustainable manner.

One Data Point – Many Uses

Plant Managers

- Are we meeting our targets?
- Low frequency data

Process Engineers

- How can we optimize the process?
- High frequency data

Corporate Accounting

- What is our revenue from sales?
- Low frequency data

Compliance Reporting

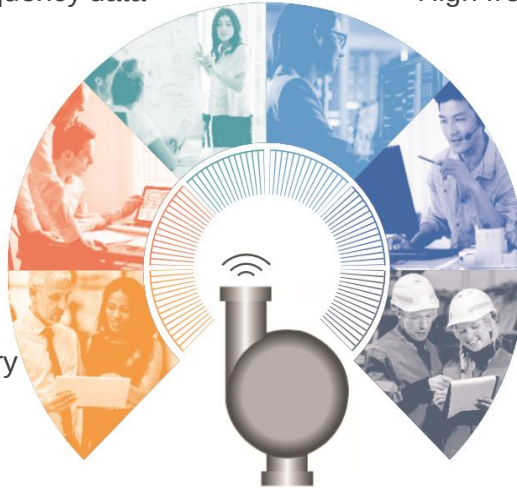
- Are we meeting regulatory requirements?
- Varies by requirement

Maintenance Specialists

- What is the health of the equipment?
- High frequency data

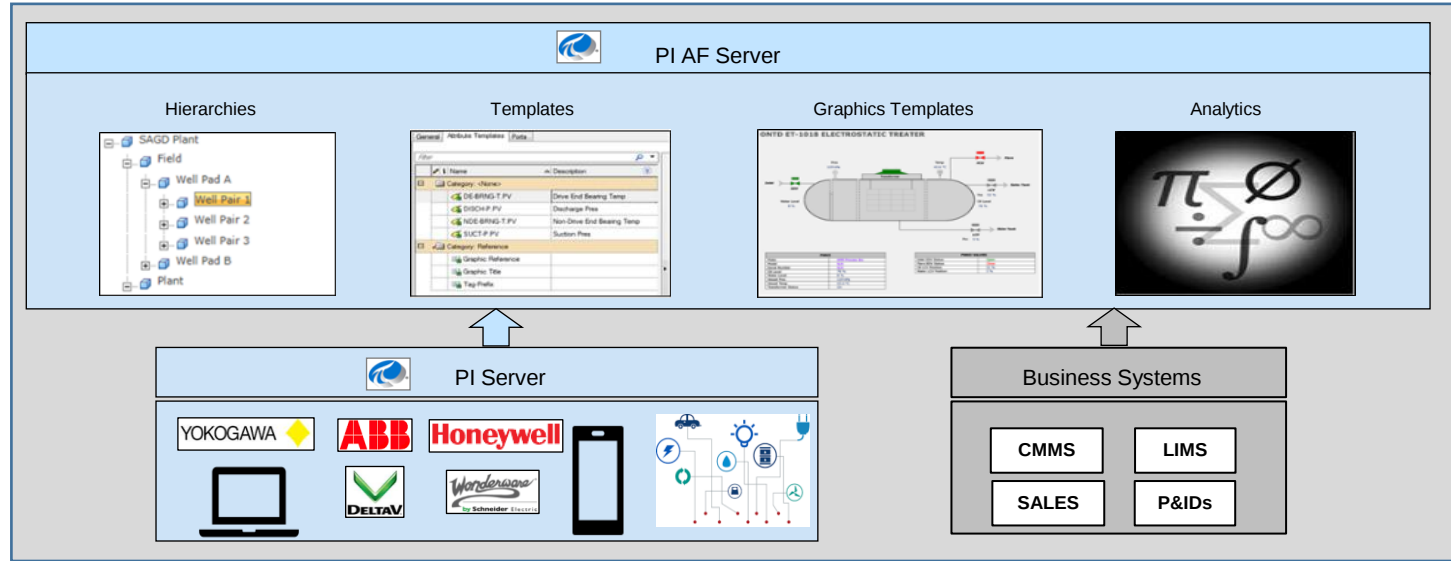
Data Scientists

- Are there new learnings using multiple data sets?
- Varies pending on investigation



Each team has different needs and perspectives for operational data

PI AF – OT Data “Game Changer”



Use PI AF to provide structure, organization and context to OT Data

How to Leverage the PI System



White paper: Best Practices for Operationalizing Data Driven Decisions Across the Enterprise

<https://www.osisoft.com/whitepapers/Best-Practices-for-Operationalizing-Data-Driven-Decisions-Across-the-Enterprise.pdf>

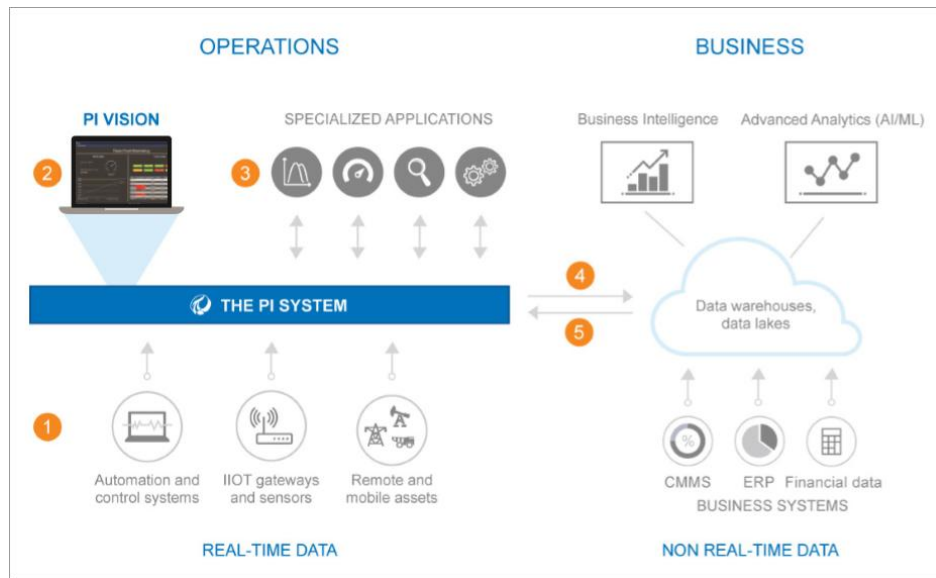
Enterprise PI – Source for Trusted OT Data

Fit for Purpose

- OT Dashboards
- Specialized Point Solutions

Consolidate Data

- Control Systems
- IOT Devices
- Mobile Assets



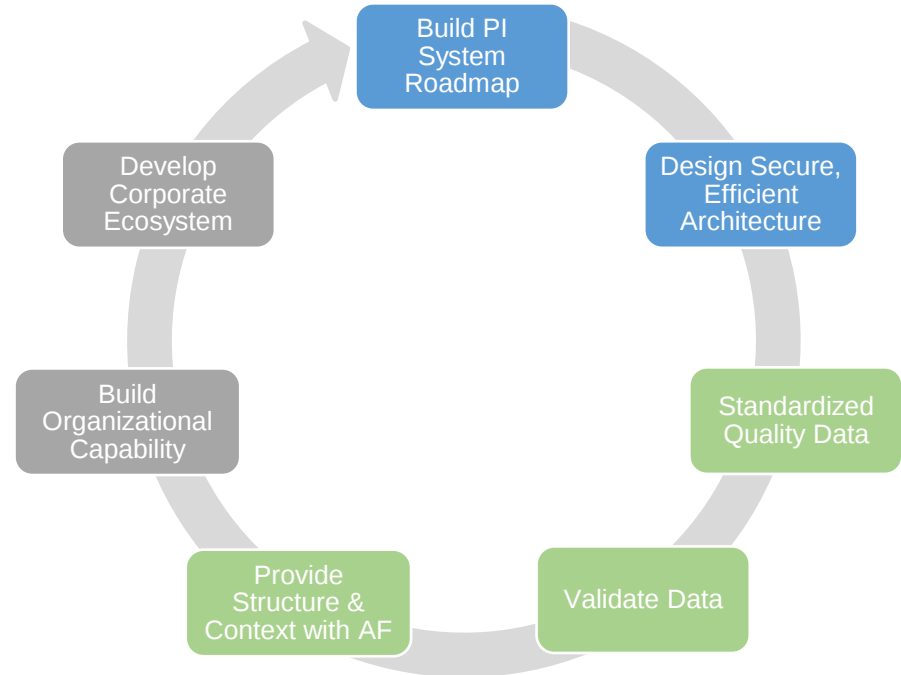
Data Sharing

- Pass select data between OT and IT systems to meet specific needs
- Supports effective collaboration

Eliminate data silos to enable data access for the organization

Success of a Deployment Plan

- Build the plan:
 - Architecture and data collection
- Standardize, validate, and organize:
 - Develop and apply standards
 - Data Validation
 - Add structure with AF
- Deliver value to the organization:
 - Develop organizational capability
 - Training program
 - Coaching and mentoring users leverage operational data
 - Sharing best practices
 - IT/OT collaboration



Evolution of the PI System at Nutrien

Before:

- Tracking and reporting based on past performance
- Decisions primarily based on historical metrics



Now:

- Changed the paradigm - acknowledge previous performance but operate on current data
- Question becomes - “What can I impact right now to safely meet or exceed targets?”

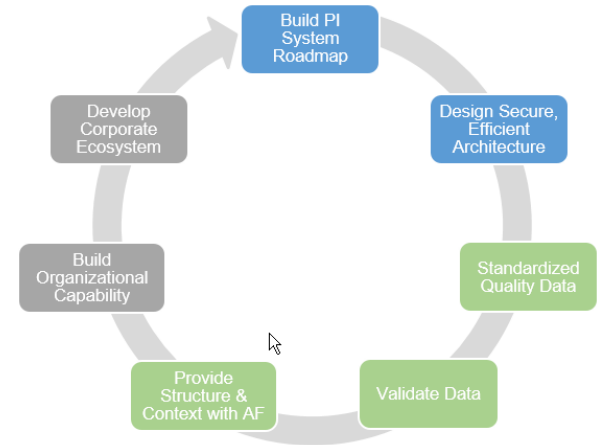
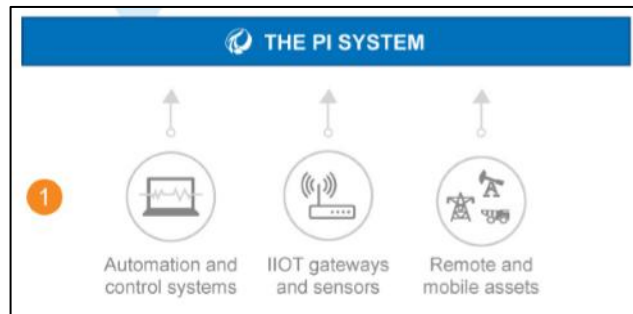
Nutrien Business Challenges

- Merger: PotashCorp + Agrium = Nutrien
- Solution development:
 - Operations dashboards and reporting
 - KPI tracking
 - Energy monitoring
 - Equipment health
- Collect and organize data for analytics and machine learning:
 - Equipment analytics for Maintenance
 - Process analytics for Operations
 - Business analytics for Management



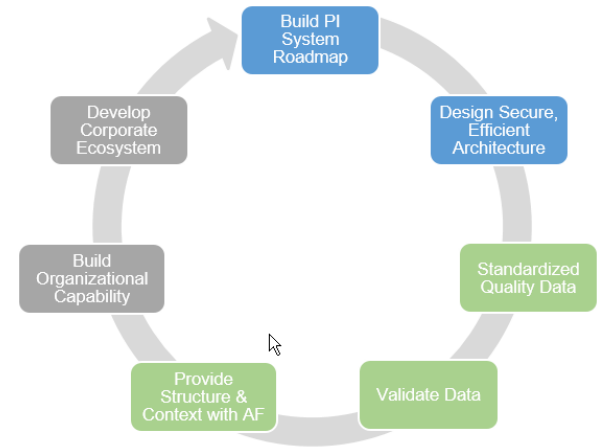
Architecture and Data Collection

- PI System architecture
 - Ensure secure data transfer
 - Designed to meet specific site needs
- Interfaces and connectors:
 - Leveraged standard interfaces – predominantly OPC DA



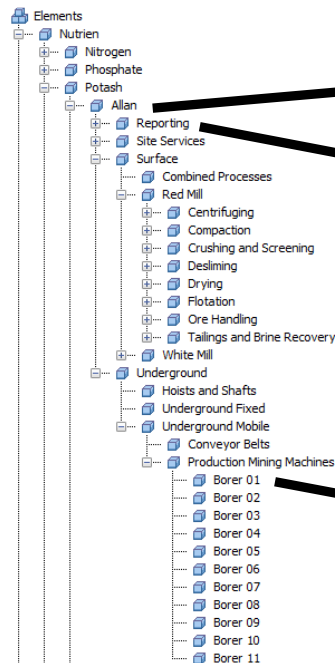
Standardize, Validate, and Organize

- Vanscoy Site Deployment (4 Month, 28,000 Tags):
 - Standard architecture deployment for data collection
 - Data validation
 - Apply defined naming convention
 - AF rollout using defined templates
 - History migration
- Rollout to the rest of the company:
 - Nitrogen (11)
 - Phosphate (8)
 - Retail (5)

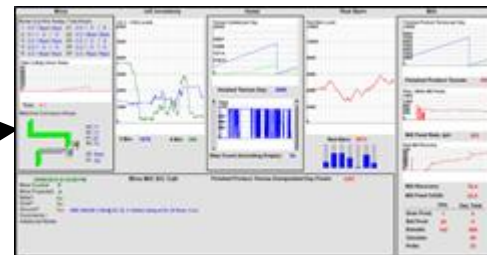


Organizational Capability

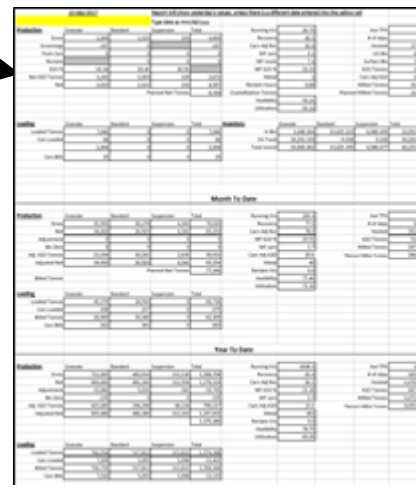
AF Integration



Site graphics, dashboards
and KPI's



Site Reports



Equipment graphics,
dashboards, etc.



Nutrien
Feeding the Future™

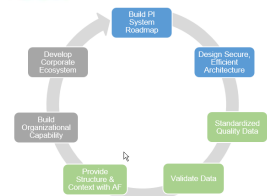


WebFocus example

Operations

[illegible]

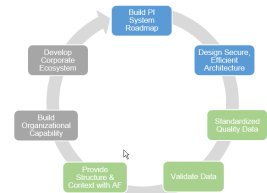
From
PI



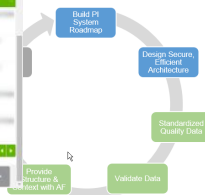
Organizational Capability

PI Day:

- Building a PI Community
- Sharing best practices
- Testimonials
- Demonstration of new PI System capabilities
- Sharing perspectives
- Provide PI System awareness and user training

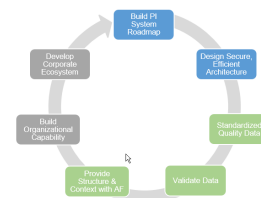
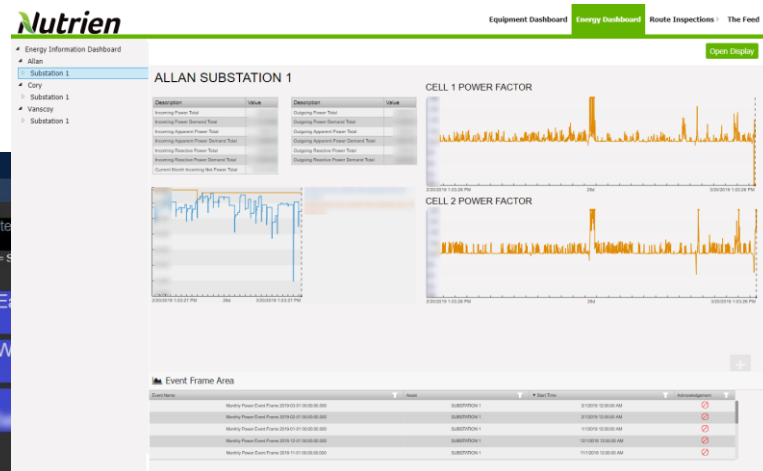
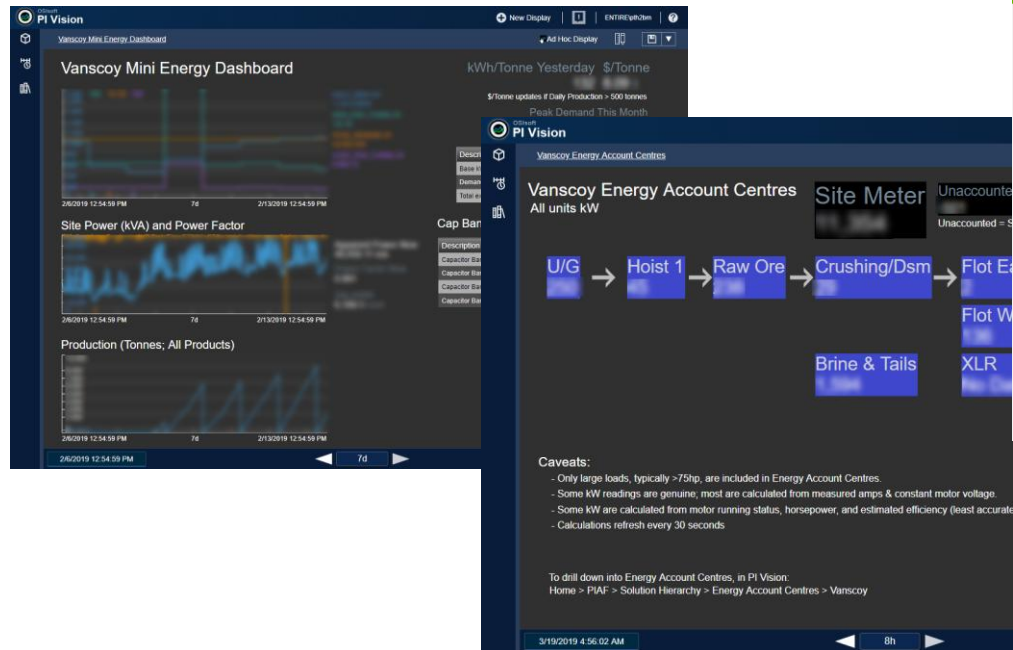


PI Vision Dashboards - Equipment



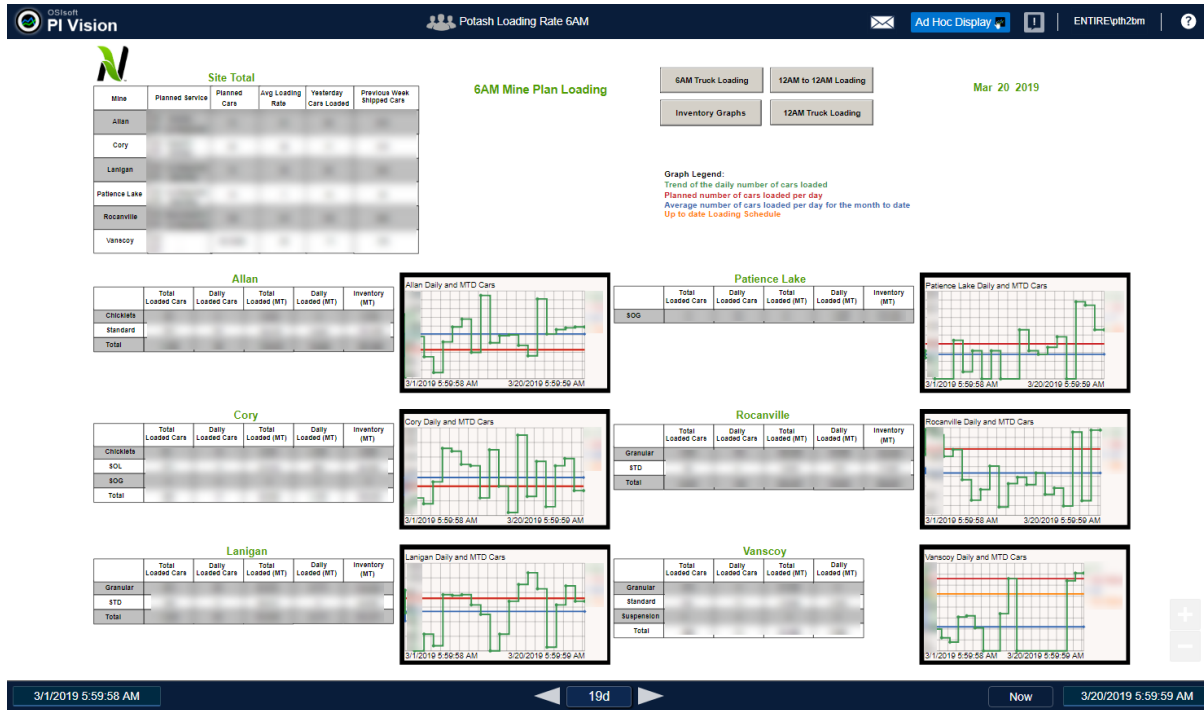
Organizational Capability

PI Vision Dashboards - Energy



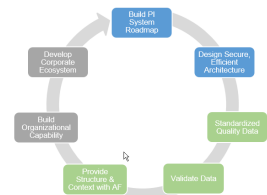
Organizational Capability

PI Vision Dashboards - Loadout



AF Integration

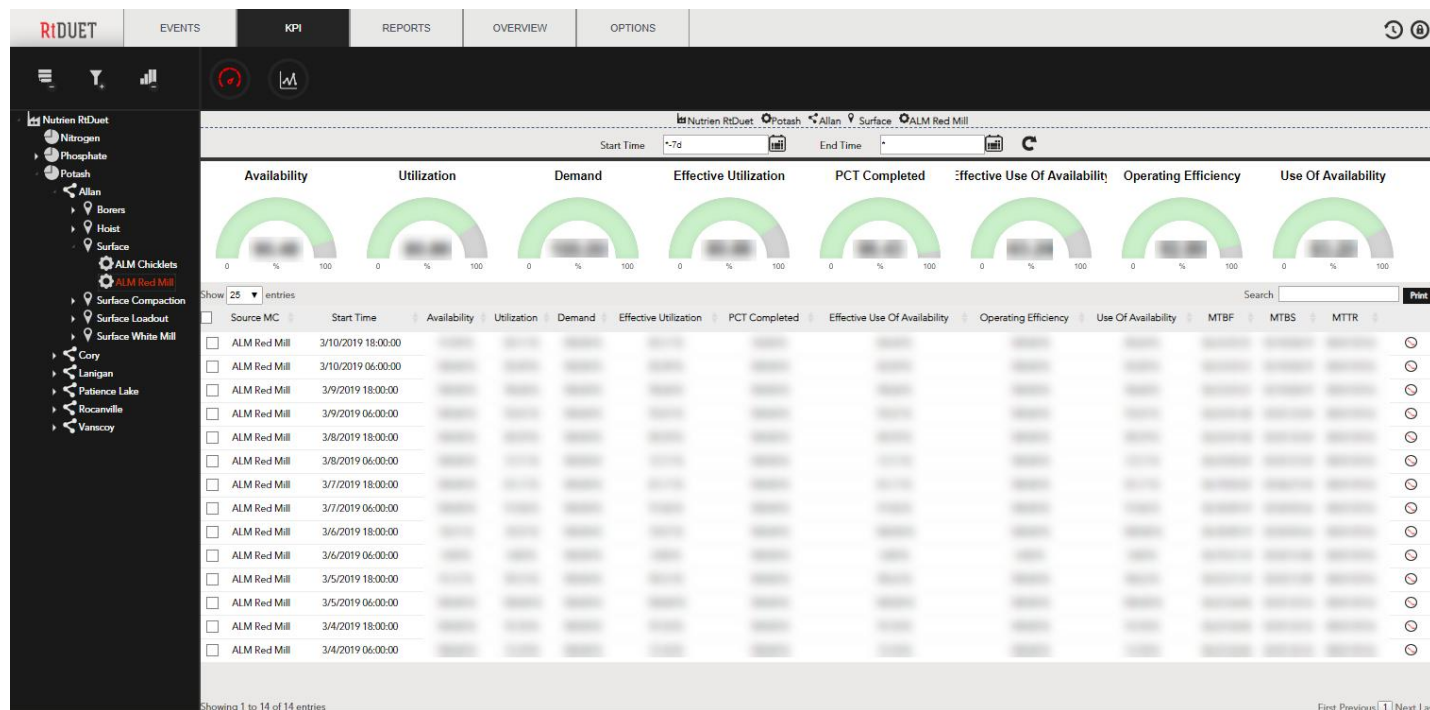
- Home grown Loadout SQL database
- PI AF Integration makes summary information available to PI users in real time



Organizational Capability

Leverage Partner Ecosystem - RtDuet

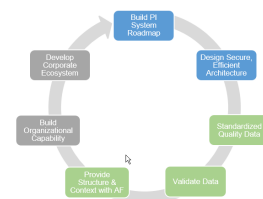
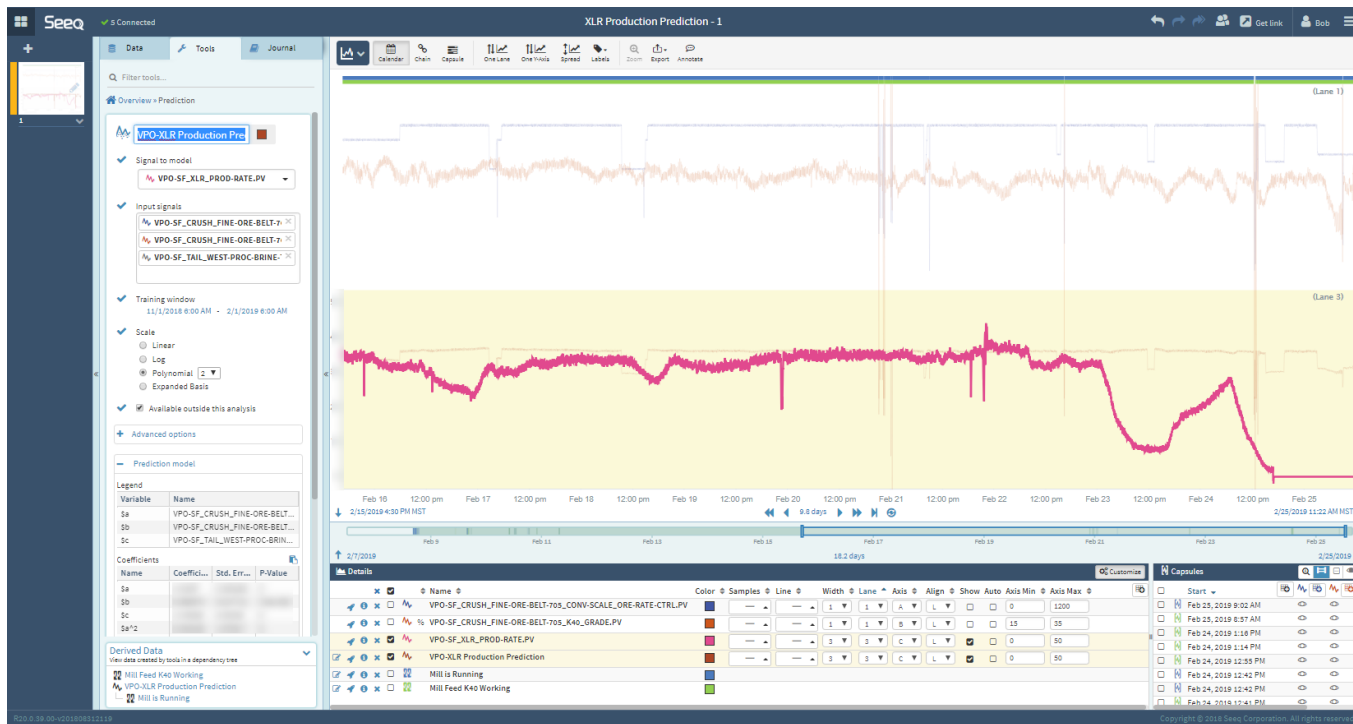
Nutrien
Feeding the Future™



Organizational Capability

Leverage Partner Ecosystem - SEEQ

Nutrien
Feeding the Future™



Solving Operational Challenges



• PI System Event Frames

• PI Vision



Leverage Event Frames and Notifications to Identify Emerging Issues

Implement PI Vision Dashboards to Monitor Equipment

Integrate OT Data with Context into Predictive Analytics

Pass OT Data with Context to Specialized Analytics Applications

• Predictive Analytics

• Specialized Analytics



Nutrien Powered by AF



Nutrien, the world's largest fertilizer company, **is leveraging operational data** to help feed the world.



CHALLENGE

Require consistent operational data that users can trust and easily access to make informed decisions

- Strong desire to leverage operational data across the business
- Operational data differs site to site AND between business units
- Merger provided different options to gather operational data

SOLUTION

Expanded PI System to incorporate the Agrium assets

- Integrated Agrium Vanscoy Potash Mine into PCS PI System
- Planning to integrate Nitrogen, Phosphate and Retail assets

RESULTS

Created a trusted source of operational data to be readily leveraged for business solutions

- Leveraging structured OT data in PI System to rapidly deploy new functionality across the sites
- Benefits too many to measure
- Implementation changed from a PUSH to a PULL

Contact Information



- **Heather Quale**
- Heather.Quale@meragroup.net
- President
- Mera



- **Bob McIntyre**
- Bob.McIntyre@nutrien.com
- Senior Manager, Process Control
- Nutrien



Learn More About Nutrien/Mera Story

- 2018 Presentation: *Leveraging the IT/OT Relationship to Identify Optimization Opportunities*
<https://www.osisoft.com/Presentations/The-PI-System-%E2%80%93-Leveraging-the-IT/OT-Relationship-to-Identify-Optimization-Opportunities/>
- 2018 Webinar: *IT/OT Convergence Solutions*
http://pages.osisoft.com/WS-CORP-Q1-18-02-15-ITOTConvergenceSolutions_RegisterNow-OnDemand.html?_ga=2.192337577.261080146.1553105510-1158374395.1543593304
- White paper: *Best Practices for Operationalizing Data Driven Decisions Across the Enterprise*
<https://www.osisoft.com/whitepapers/Best-Practices-for-Operationalizing-Data-Driven-Decisions-Across-the-Enterprise.pdf>
- White paper: *7 Steps to Bring Operations Data to Your Enterprise*
<https://www.osisoft.com/whitepapers/7-Steps-to-Bring-Operations-Data-to-Your-Enterprise.pdf>

Questions?

Please wait for
the **microphone**

State your
name & company



Please remember

TO DOWNLOAD
APP, SEARCH
OSISOFT



Download on the
App Store



GET IT ON
Google Play



