THE INTERNATIONAL GROUP, INC.

November 18, 2022

Using PI System with AI to Grow Revenue

Bill Sandblom, CIO – The International Group, Inc.

Gary Robinson, COO – Lityx, LLC

AVEVA

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

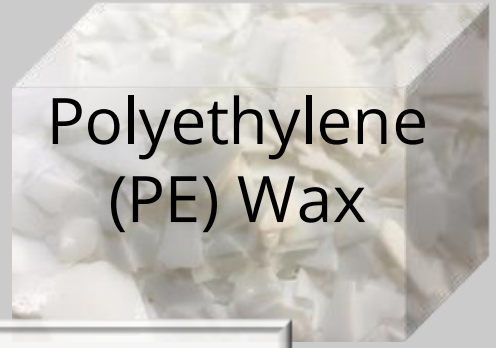
Agenda

- The International Group, Inc.
- Goal
- Results
- The Data and Insights Journey
- PI System with AI in LityxIQ
- Aveva DataHub™
- Next Steps

The International Group – IGI Wax

THE INTERNATIONAL GROUP, INC.

Microcrystalline Wax



Polyethylene (PE) Wax

IGI Wax is a leading producer of microcrystalline wax, paraffin, PE wax, vegetable wax, and water-based coatings

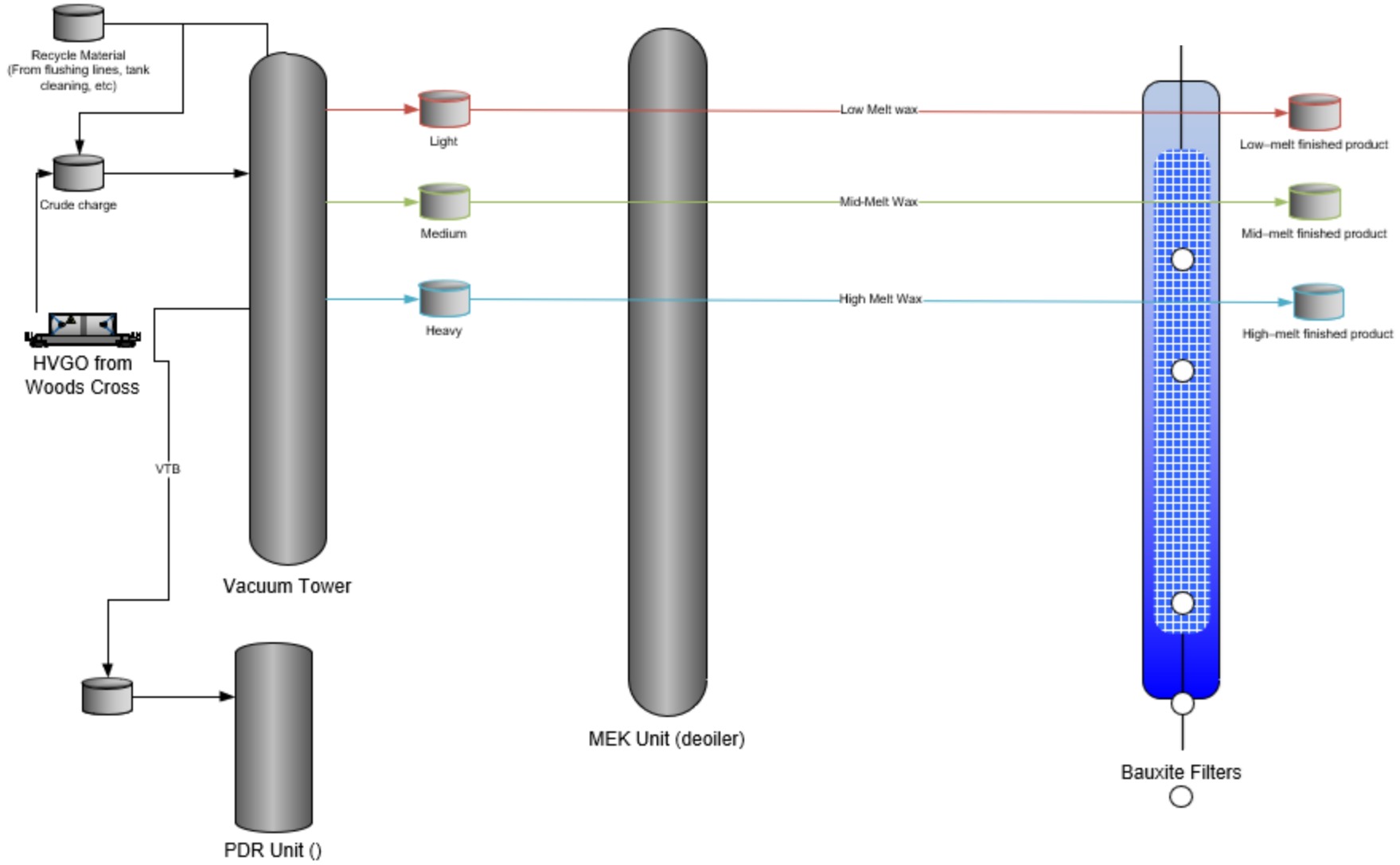
Paraffin

Vegetable Wax

AVEVA

Distillation Process

THE INTERNATIONAL GROUP, INC.



AVEVA

Goal

THE INTERNATIONAL GROUP, INC.

Challenge

- Turn real time and historical PI System and lab data in the wax refinery into insights that would create significant value to the organization.

Solution

- Use the AVEVA PI system technology including PI AF, along with PI Integrations and AVEVA Data Hub to create a platform for BI and machine learning.

Potential Benefits

- Reduce waste and increase operation throughput which will result in increased company profits.
- Set the stage for many advanced analytics & machine learning projects

AVEVA

Results

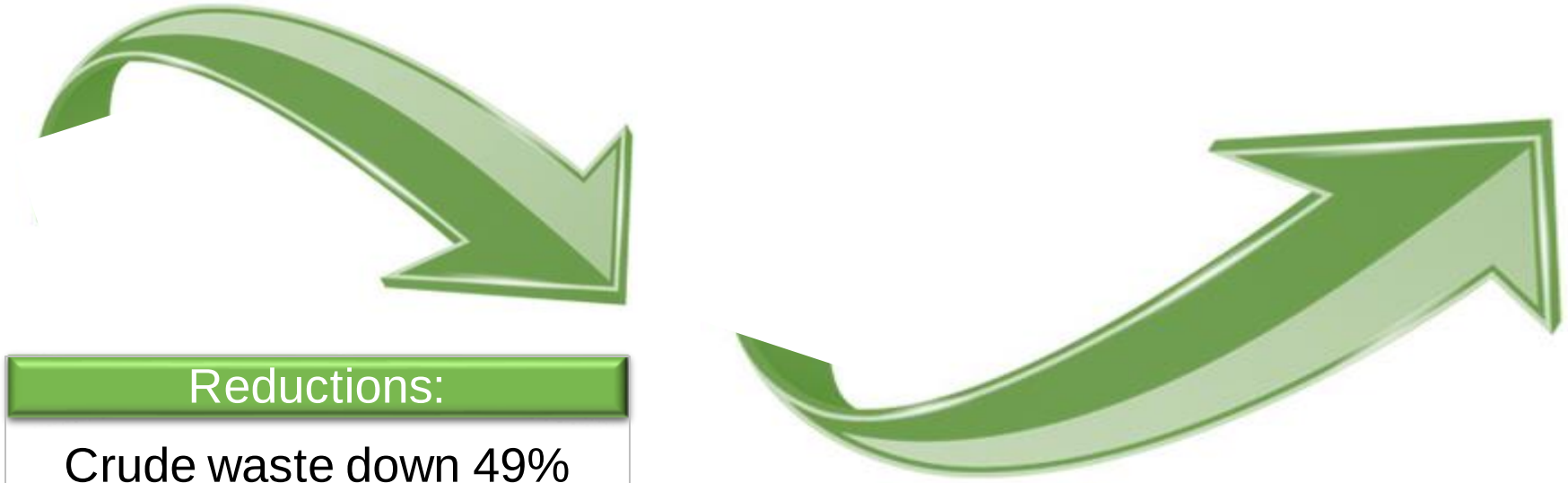
THE INTERNATIONAL GROUP, INC.

Increases:

$10MM+ annual incremental profit

6MM pounds incremental wax

ROI of 67x+



Reductions:

Crude waste down 49%

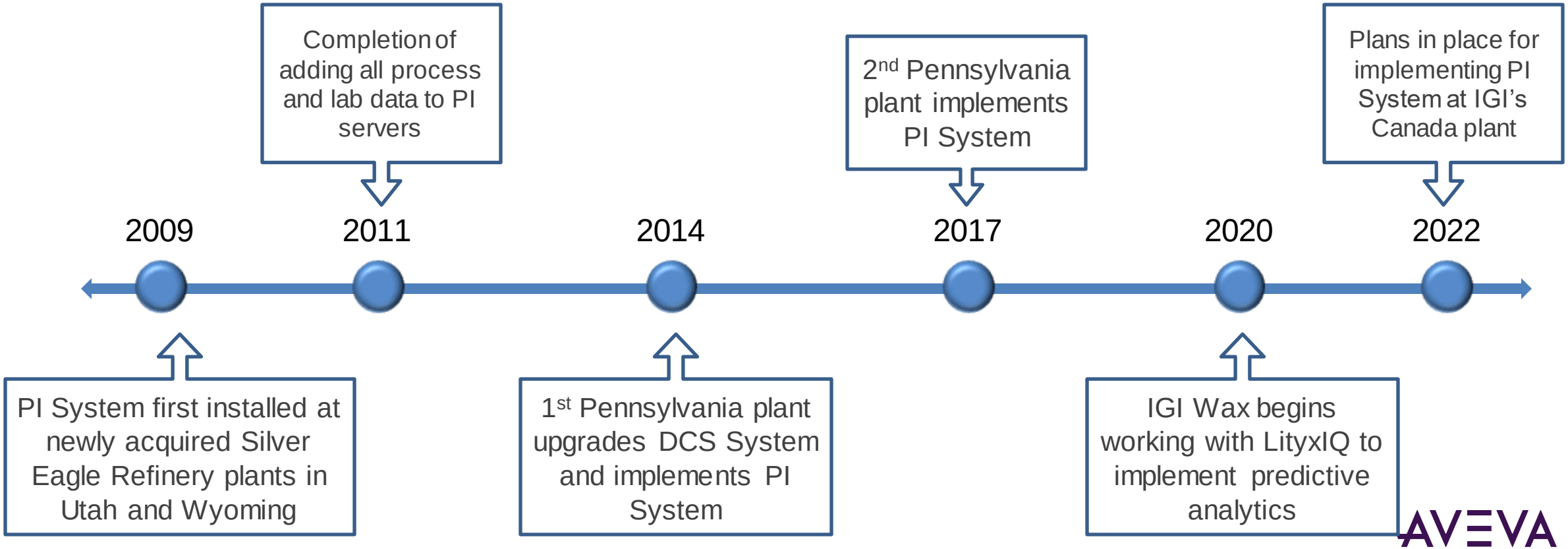
Off-spec processing reduced

AVEVA

History with PI System

THE INTERNATIONAL GROUP, INC.

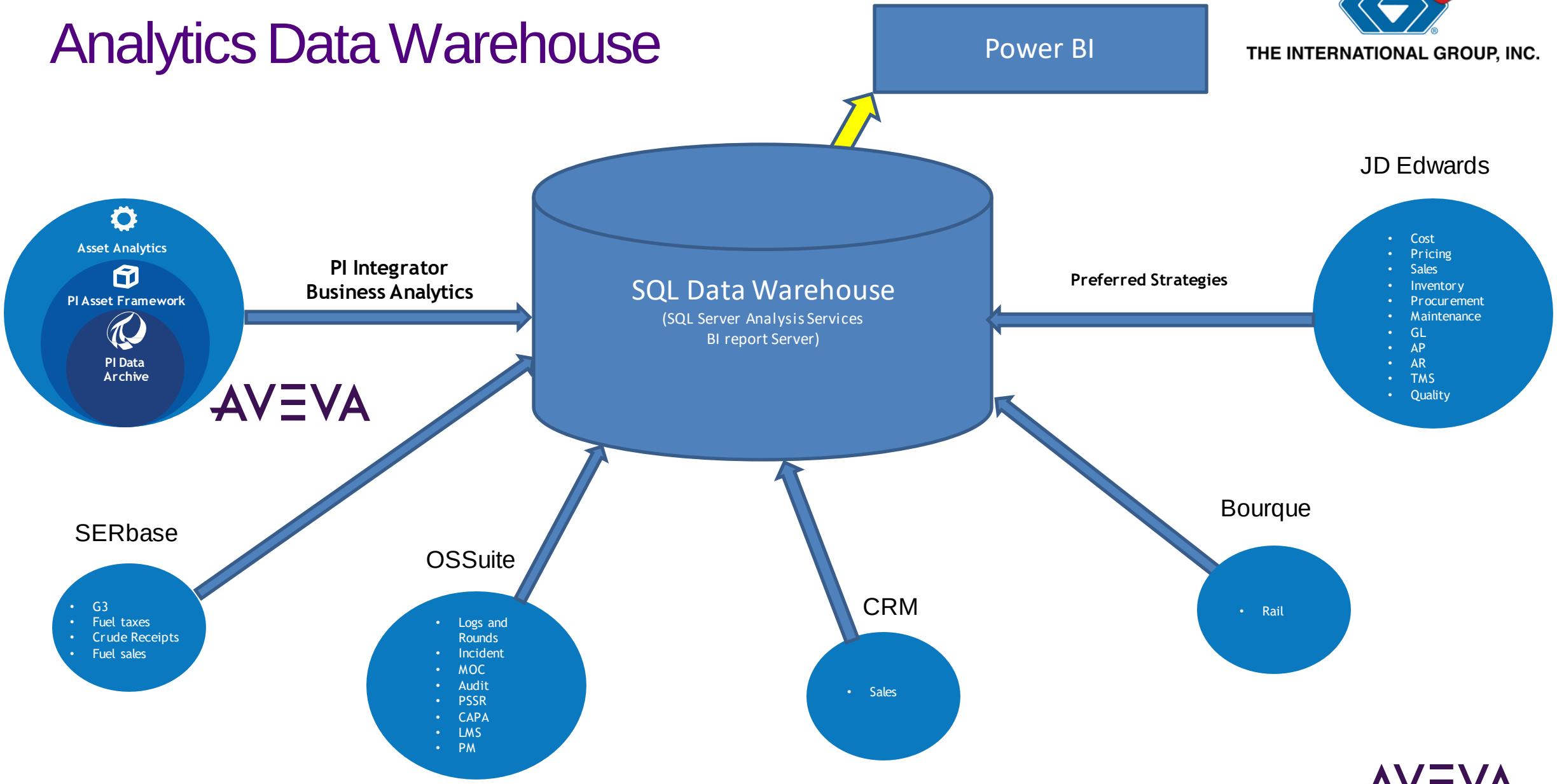
As International Group expanded, it was recognized that there was tremendous value and efficiencies to be achieved by capturing and analyzing millions of pieces of process and laboratory data through PI Systems.



AVEVA

Analytics Data Warehouse

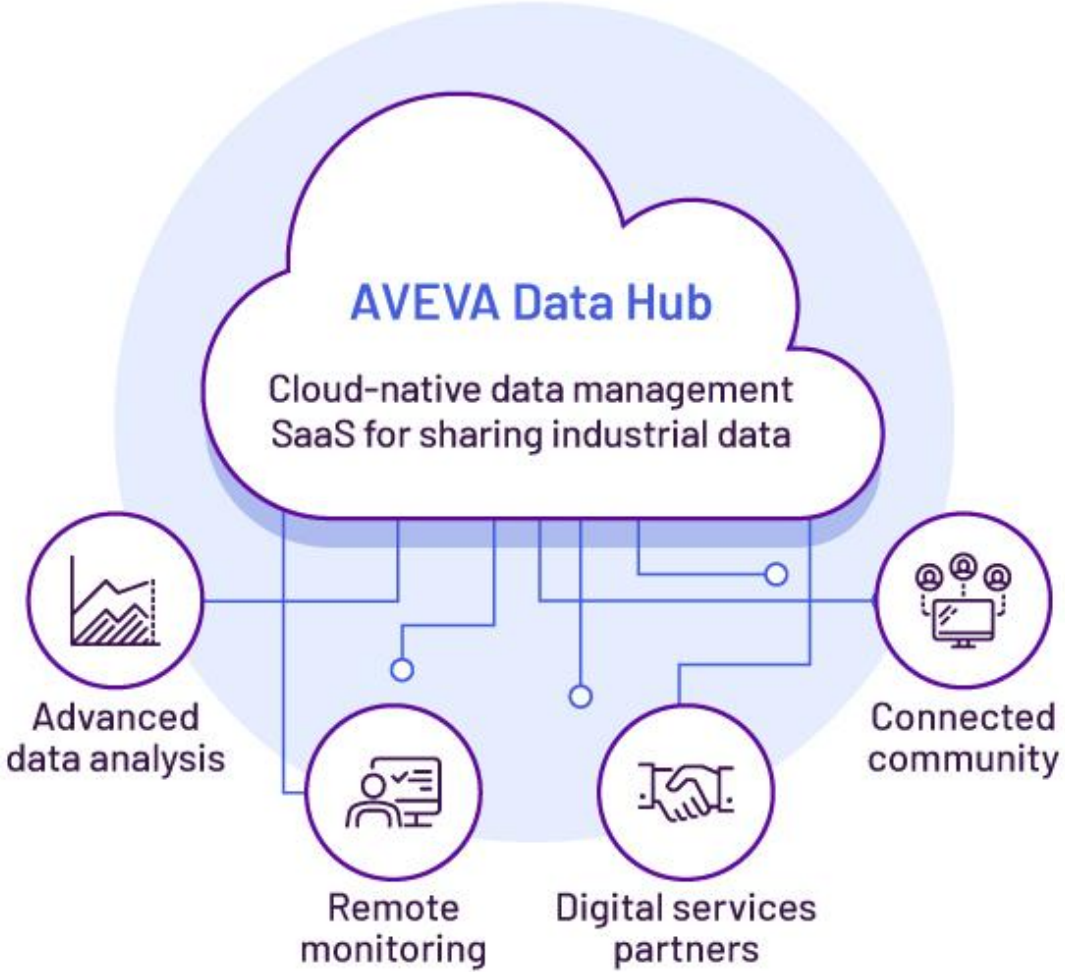
THE INTERNATIONAL GROUP, INC.



AVEVA

AVEVA Data Hub

THE INTERNATIONAL GROUP, INC.



Purpose built to meet the demands and challenges of industrial information

Simple, **secure data sharing** with trusted partners and experts

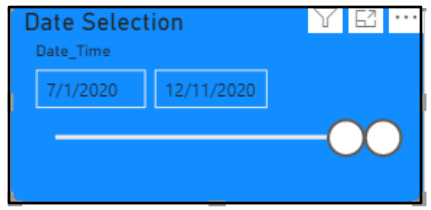
Rapid time-to-value with **native integration** to AVEVA PI Server and Edge Data Store

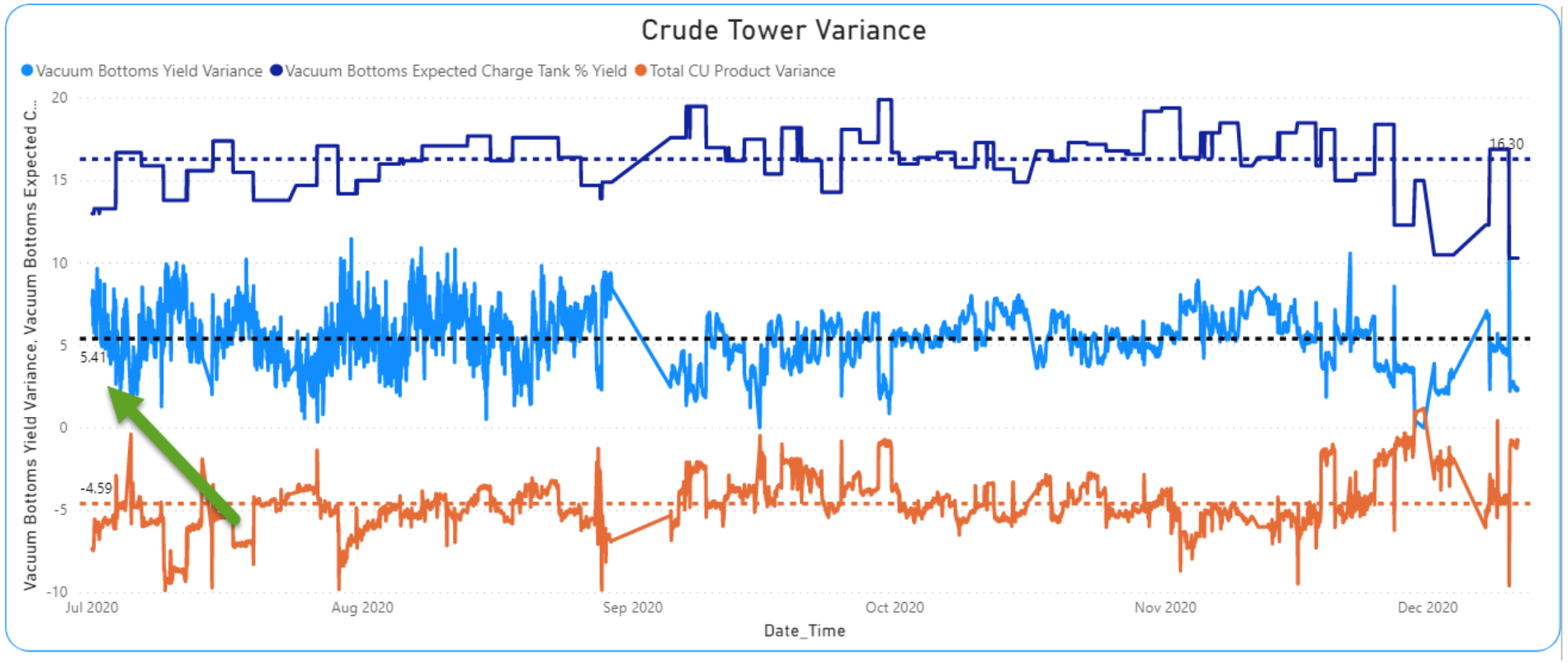
Scalable foundation for new digital service business. Get up and running in **minutes, not months**

AVEVA

PI System in PowerBI

THE INTERNATIONAL GROUP, INC.

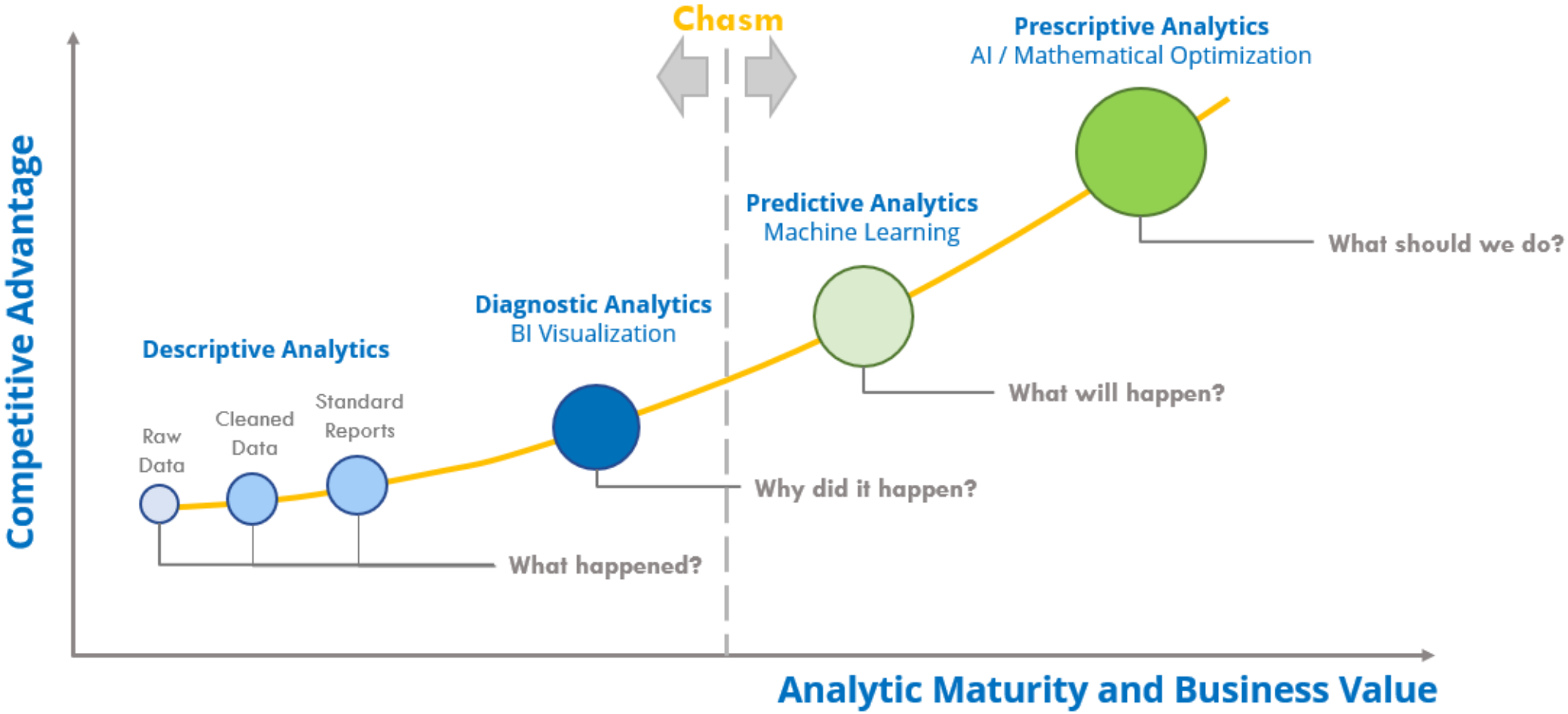




AVEVA

Analytic Progression

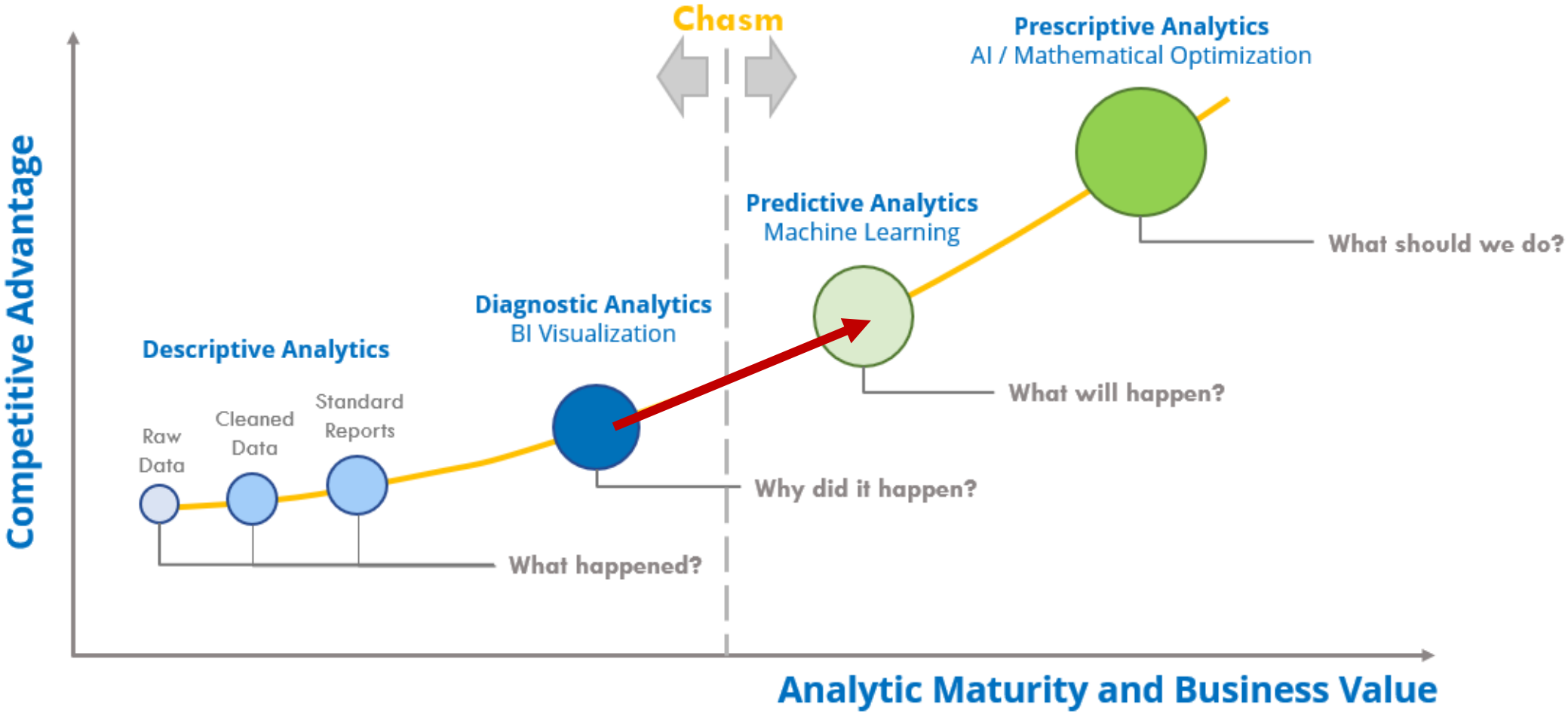
THE INTERNATIONAL GROUP, INC.



AVEVA

Desired Use of AI

THE INTERNATIONAL GROUP, INC.



AVEVA

Bingo!

THE INTERNATIONAL GROUP, INC.

LITYX IQ

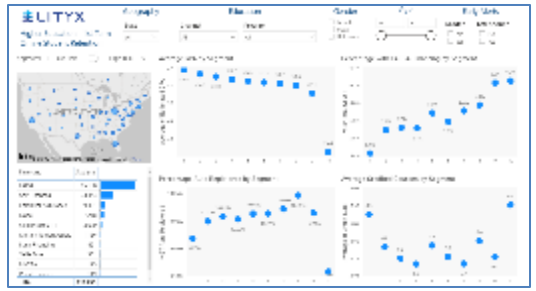
Data Sources

- PI System
- AVEVA DataHub
- Amazon DynamoDB
- Amazon S3
- Azure SQL Data Warehouse
- Dropbox
- FTP
- MariaDB
- Microsoft SQL Server/Azure
- MySQL/Aurora
- PostgreSQL
- Redshift
- FTPS
- Google Analytics
- Google BigQuery
- Google Drive
- HubSpot
- SFTP
- Salesforce
- Snowflake
- Teradata

Insights & Decisions

- Automation
- Data Blending / Feature Engineering
- Business Intelligence
- Machine Learning
- Mathematical Optimization

3rd Party Tools



tableau

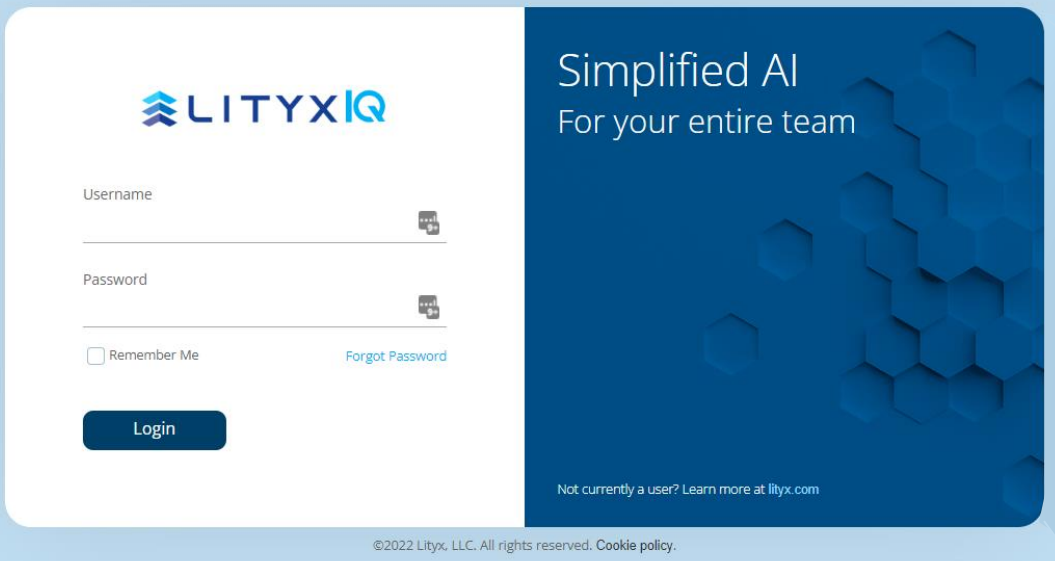
Power BI

- *BI, Reports & APIs*
- *Unplanned Downtime*
- *Supply Chain Forecasting*
- *Process Optimization*

AVEVA

LityxIQ AutoML Platform

THE INTERNATIONAL GROUP, INC.



DataManager
Create and Manage Complex Datasets

Insight
Create Insights from Data

Predict
Make Predictions with Machine Learning

Optimize
Optimize your Business with Decision Intelligence

OSIsoft® Application Partner

AVEVA

Models + Simulations = Optimal Settings

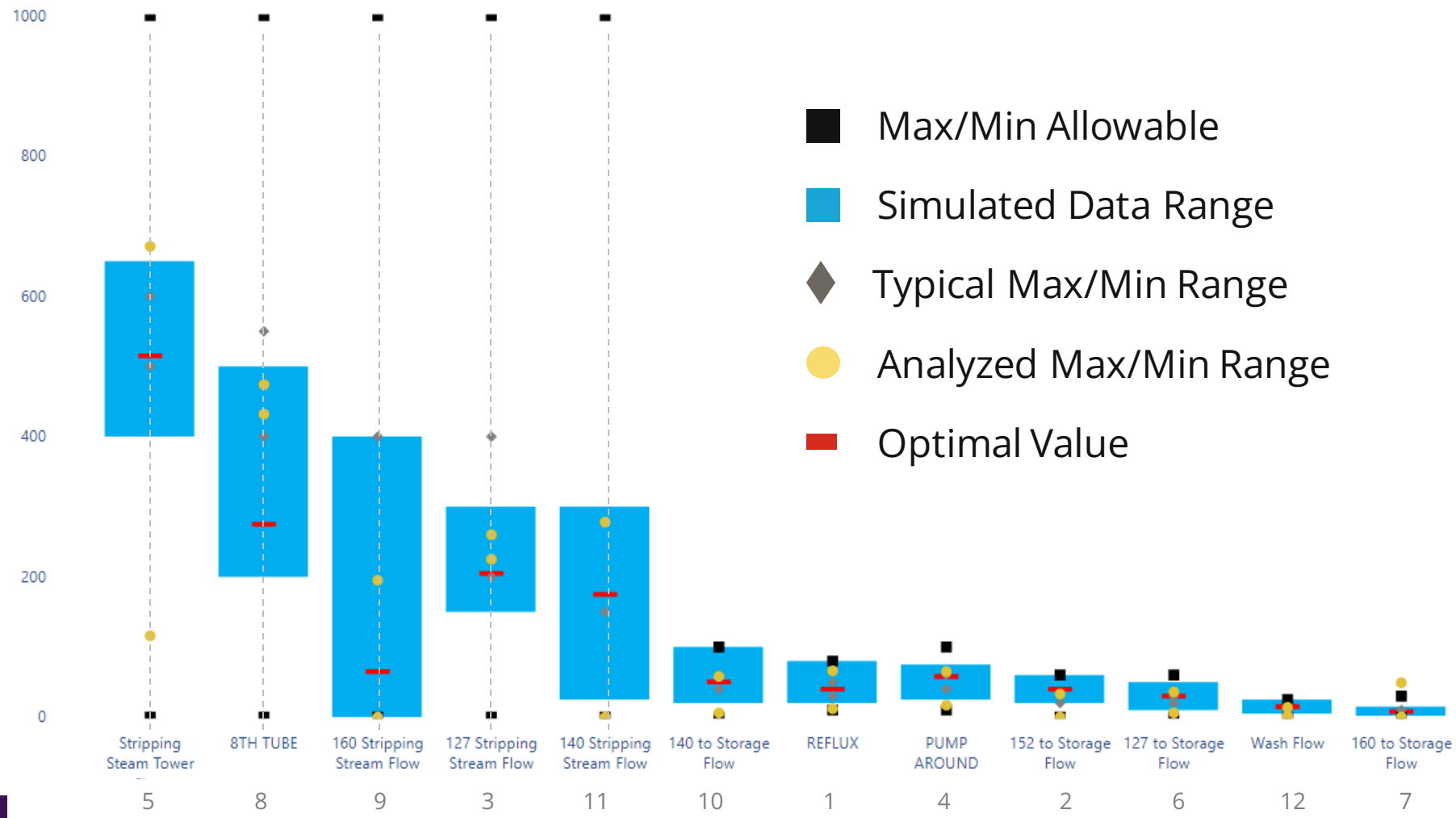
THE INTERNATIONAL GROUP, INC.

#	Model Predictor	Value
1	REFLUX	**40**
2	152 to Storage Flow	**40**
3	127 Stripping Stream Flow	**205**
4	PUMP AROUND	**58**
5	Stripping Steam Tower Flow	**515**
6	127 to Storage Flow	**30**
7	160 to Storage Flow	**8**
8	8th Tube	**275**
9	160 Stripping Stream Flow	**65**
10	140 to Storage Flow	**175**
11	140 Stripping Stream Flow	**50**
12	Wash Flow	**15**

Optimal simulated VTB Yield Variance
.0177

Avg analyzed VTB Yield Variance
.0759

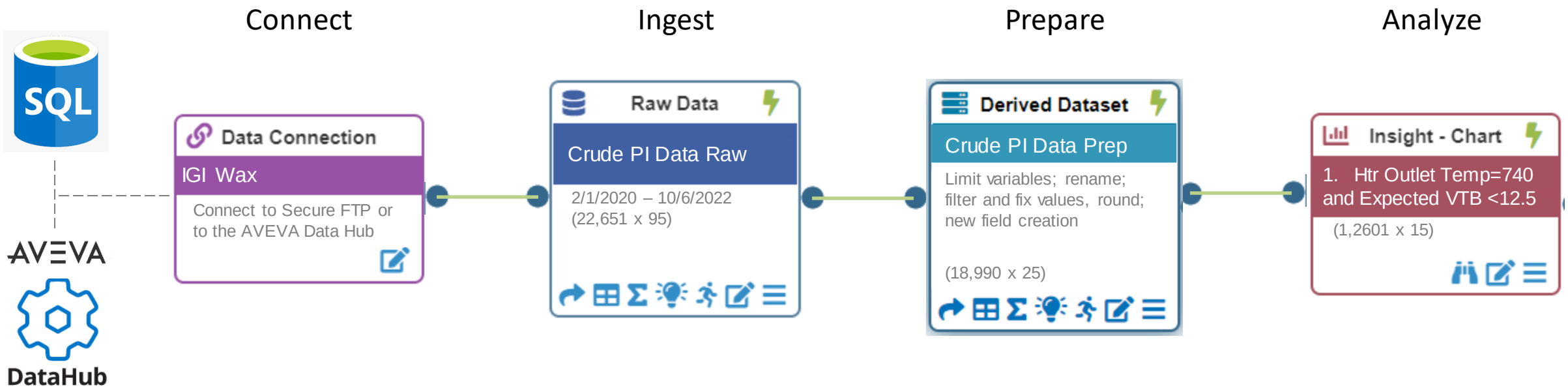
A 77% Reduction



AVEVA

Simplified LityxIQ IGI Solution

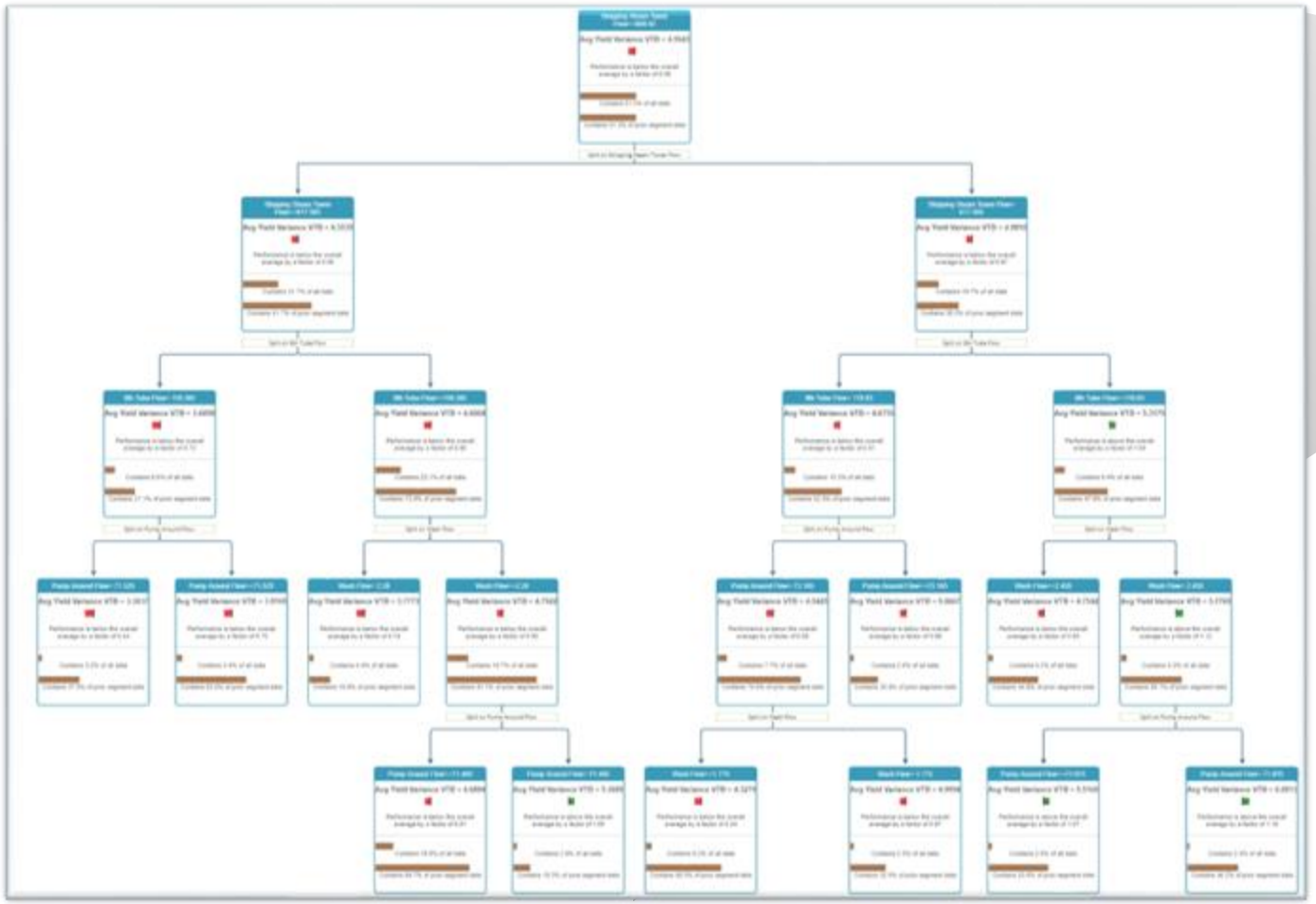
THE INTERNATIONAL GROUP, INC.



AVEVA

Automated Insights

THE INTERNATIONAL GROUP, INC.



Insight - Chart

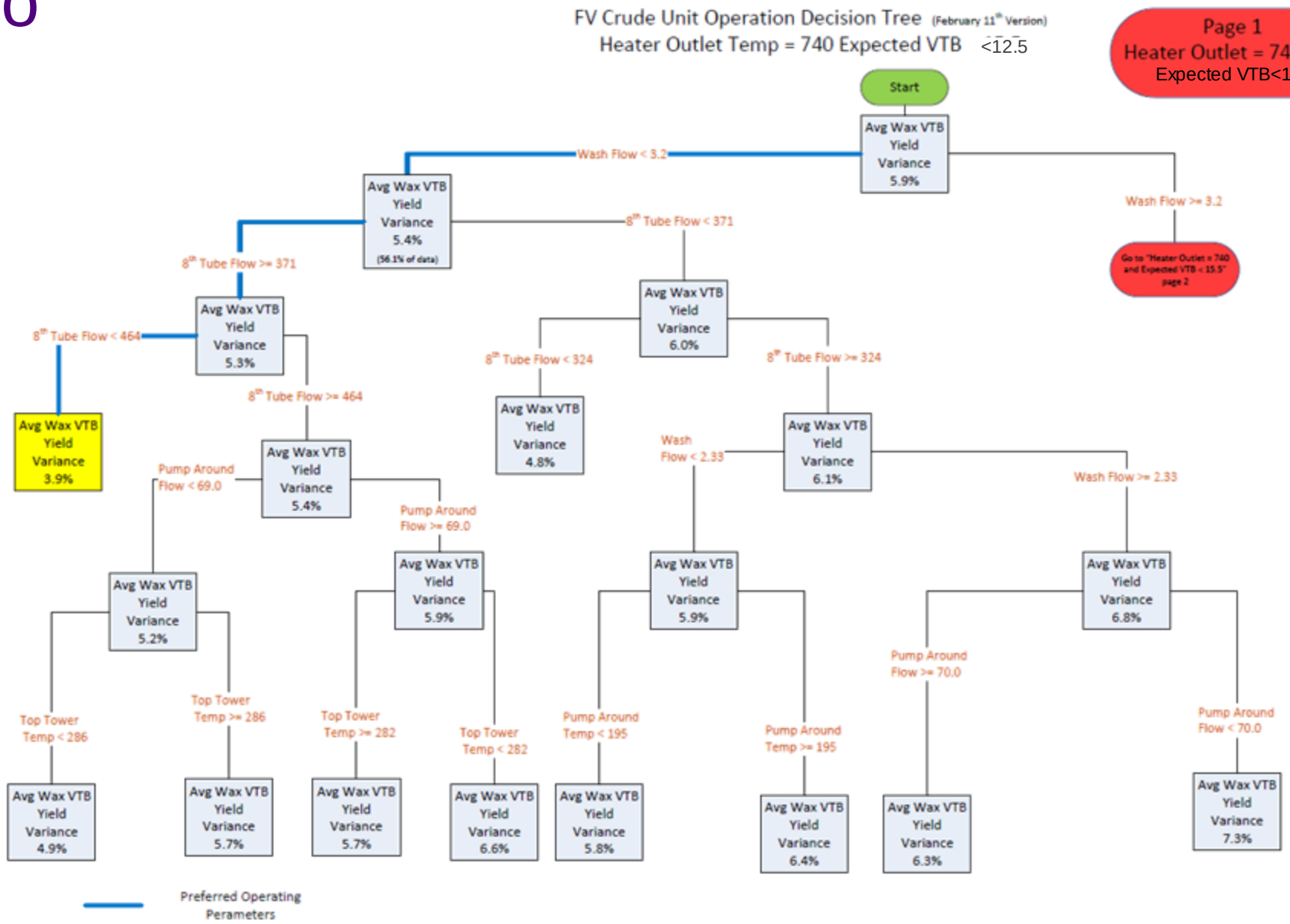
1. Htr Outlet Temp=740 and Expected VTB <12.5

(1,2601 x 15)

AVEVA

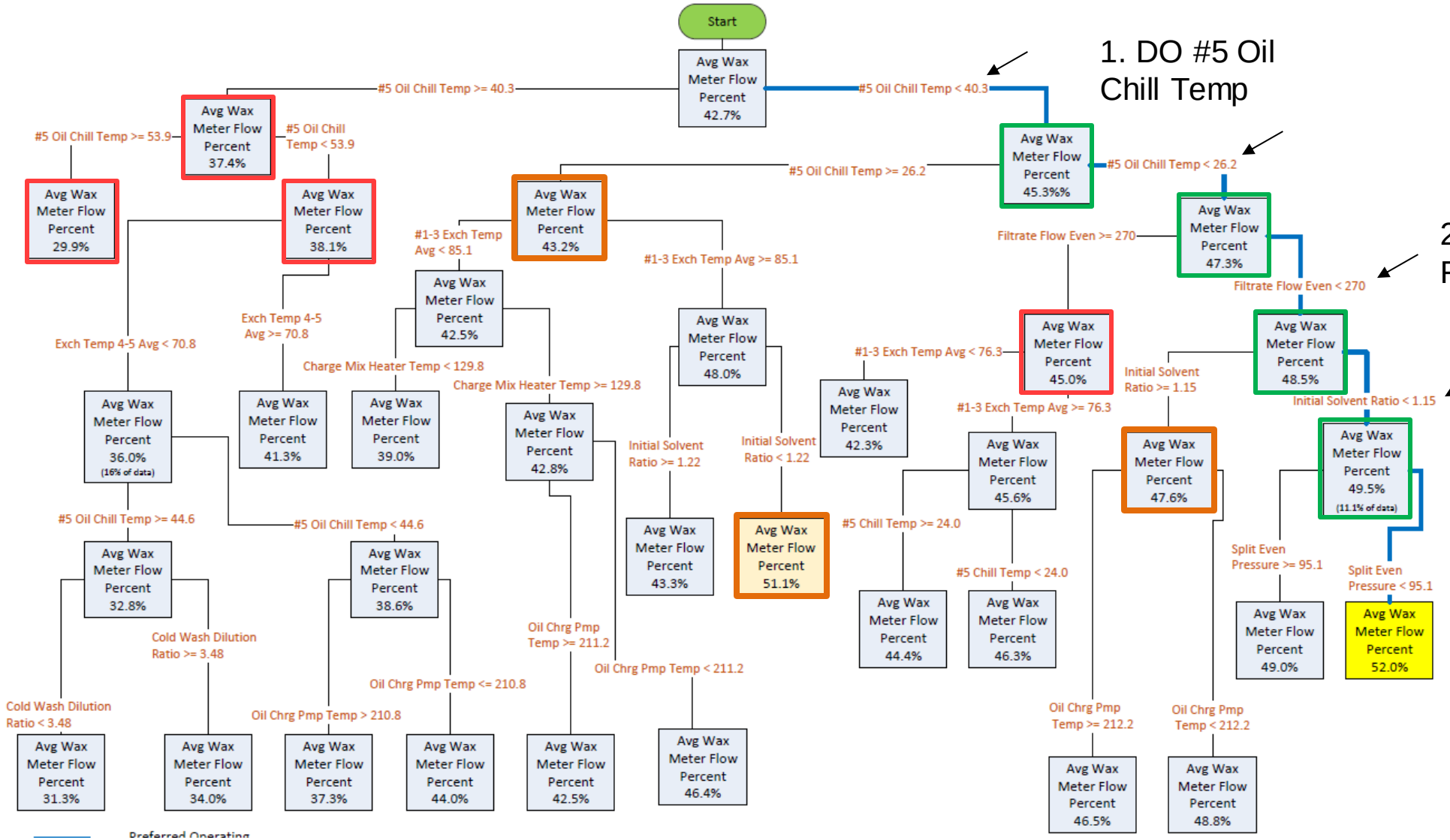
Visio

THE INTERNATIONAL GROUP, INC.



Example MEK Optimized Settings

THE INTERNATIONAL GROUP, INC.

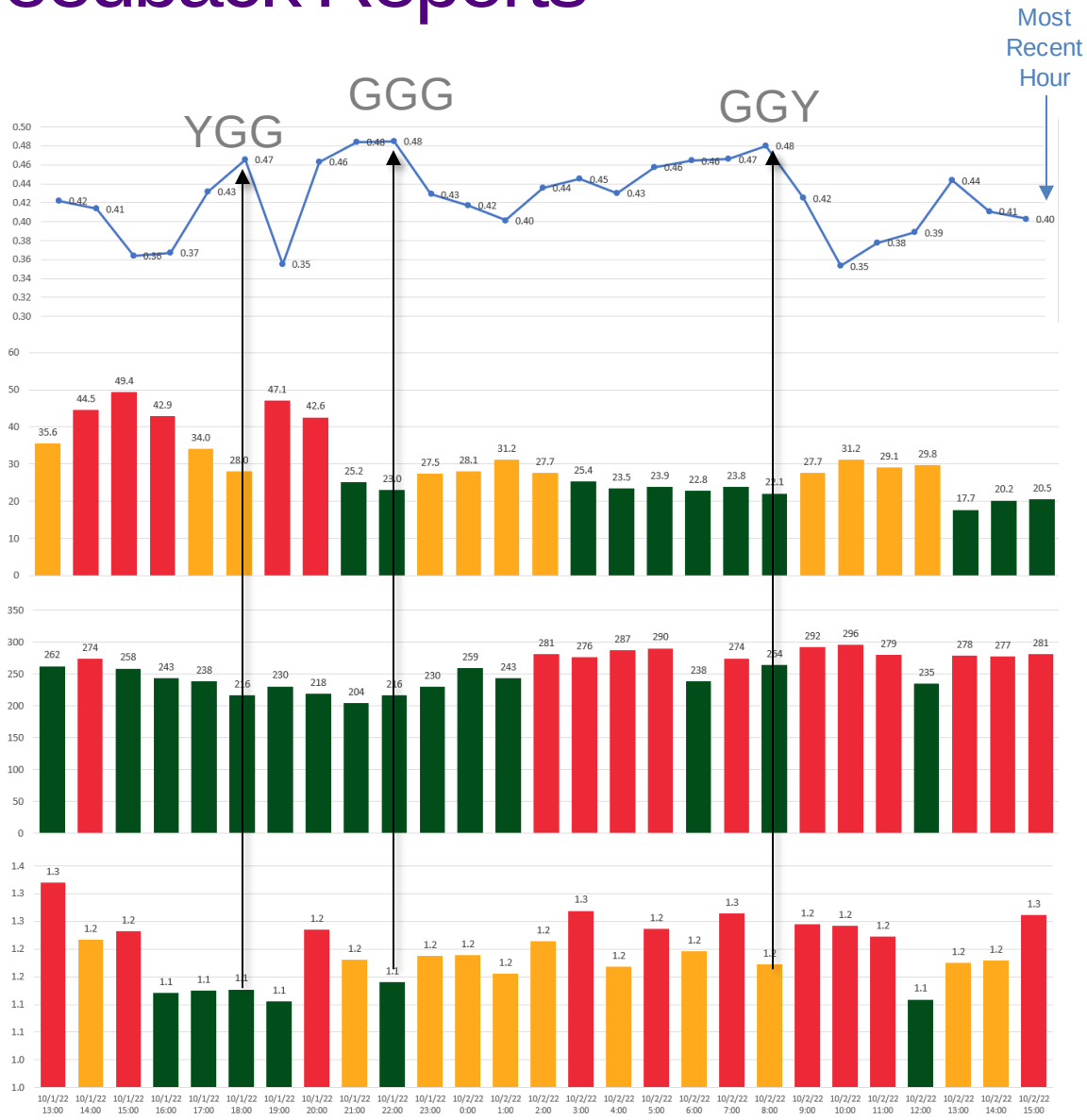


AVEVA

Real-Time Feedback Reports

THE INTERNATIONAL GROUP, INC.

DO Wax Meter Flow Pct



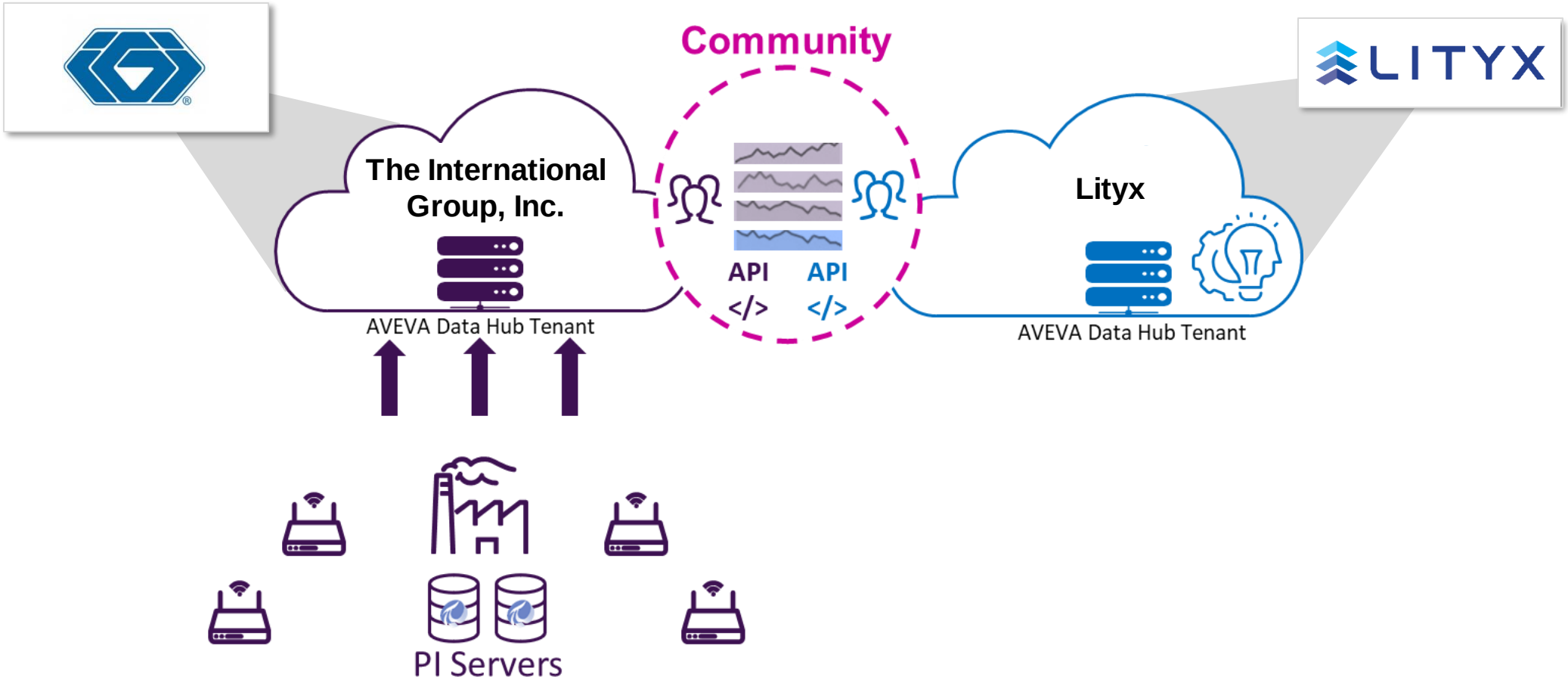
1. DO #5 Oil Chill Temp
2. DO Filtrate Flow Even
3. Initial Solvent Ratio

- Hourly updates
- Top 3 performance drivers against desired settings
- PowerBI reporting to operators and managers

AVEVA

AVEVA Data Hub Solution For IGI

THE INTERNATIONAL GROUP, INC.



AVEVA

Next Steps

THE INTERNATIONAL GROUP, INC.

- Optimize all Farmer's Valley processes
- Talk with other plants about the use of this approach
- Create and implement Real-time Feedback Reports

AVEVA

Bill Sandblom

CIO

- The International Group
- bsandblom@igiwax.com

Gary Robinson

COO

- Lityx
- grobinson@lityx.com

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Questions?

Please wait for the microphone.

State your name and company.

Please remember to…

Navigate to this session in the mobile app to complete the survey.

Thank you!

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

This presentation may include predictions, estimates, intentions, beliefs and other statements that are or may be construed as being forward-looking. While these forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could result in actual outcomes differing materially from those projected in these statements. No statement contained herein constitutes a commitment by AVEVA to perform any particular action or to deliver any particular product or product features. Readers are cautioned not to place undue reliance on these forward-looking statements, which reflect our opinions only as of the date of this presentation.

The Company shall not be obliged to disclose any revision to these forward-looking statements to reflect events or circumstances occurring after the date on which they are made or to reflect the occurrence of future events.

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

linkedin.com/company/aveva

@avevagroup

ABOUT AVEVA

AVEVA is a global leader in industrial software, driving digital transformation and sustainability. By connecting the power of information and artificial intelligence with human insight, AVEVA enables teams to use their data to unlock new value. We call this Performance Intelligence. AVEVA's comprehensive portfolio enables more than 20,000 industrial enterprises to engineer smarter, operate better and drive sustainable efficiency. AVEVA supports customers through a trusted ecosystem that includes 5,500 partners and 5,700 certified developers around the world. The company is headquartered in Cambridge, UK, with over 6,500 employees and 90 offices in over 40 countries.

Learn more at www.aveva.com

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

AVEVA