

AVEVA PI WORLD

Increasing the speed of moving data to insight with an existing toolbox

Presented By: Allen Turner

AVEVA



Allen Turner

Global Technology

Advanced Analytics Team Lead

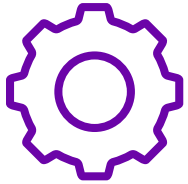
- International Paper
- Allen.Turner@ipaper.com

International Paper

- World's Largest Pulp and Paper Company
 - Founded 1898
 - \$20.6 Billion Net Sales (2020)
 - Sylvamo Spin-Off (Oct. 2021)
 - 27 Paper Manufacturing Sites in North America
 - ~2 Million PI Tags

Specific to this discussion
20 Manufacturing Sites
60 PI Servers
1.2 Million Active PI Tags

Increase the speed of moving raw data to actionable insight



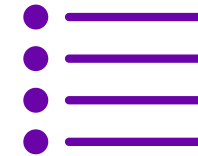
Challenge

- Prevent process performance erosion over time.
(operating time-series data)



Solution

- Leverage existing tools within the AVEVA PI System technology including PI AF, PI Vision and PI Integrator for Business Analytics to move performance auditing from manual/periodic to automatic/continuous.



Benefits

- Improved process operations (optimization and reduced variability)
- Building a stronger data foundation within PI AF
- Incorporating subject matter expertise closer to operations
- Increased visibility for insights by unlocking access to data and bringing siloed data together

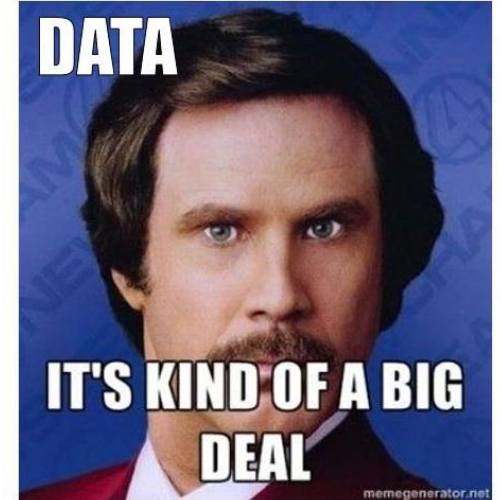
Setting the stage...

PI World 2020 – “Data: Its Kind of a Big Deal”

Data is Valuable

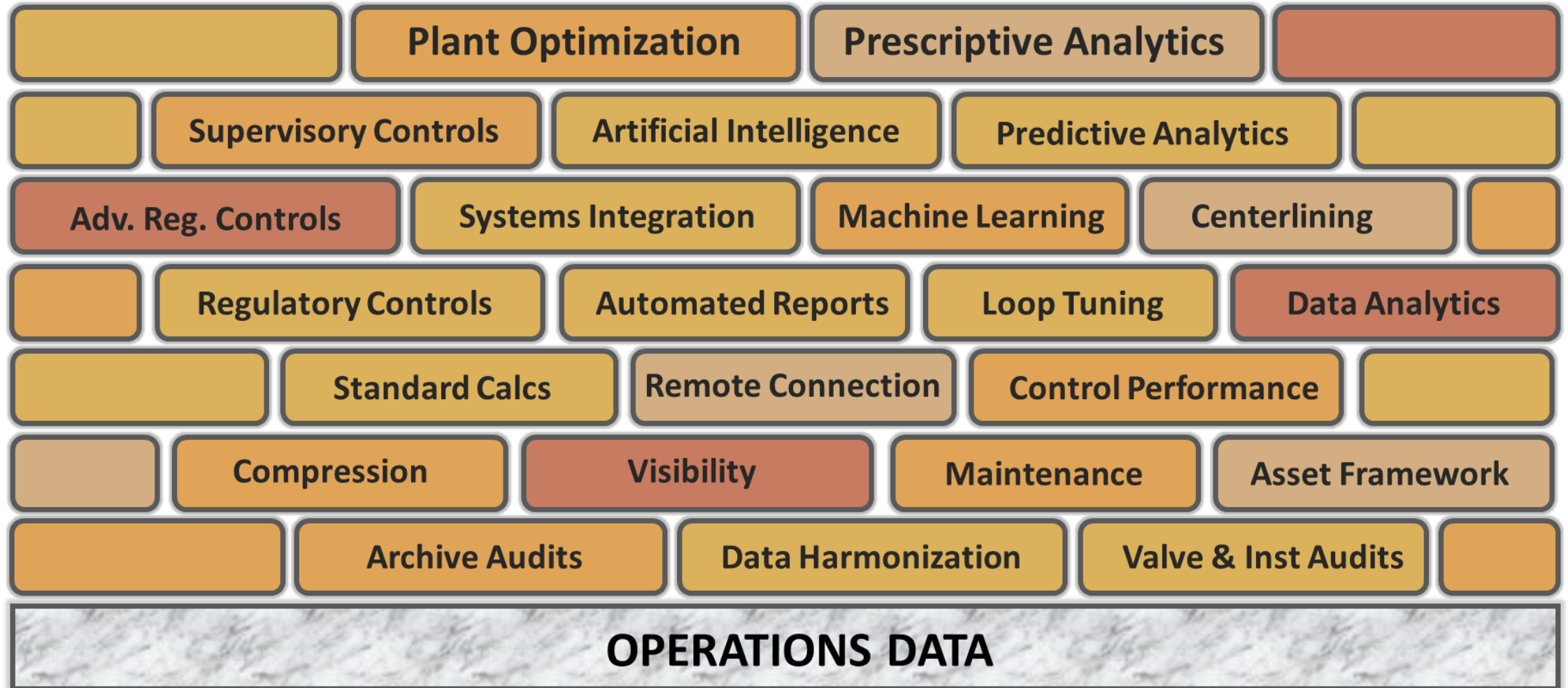
Data is Foundational

Data is not Magical

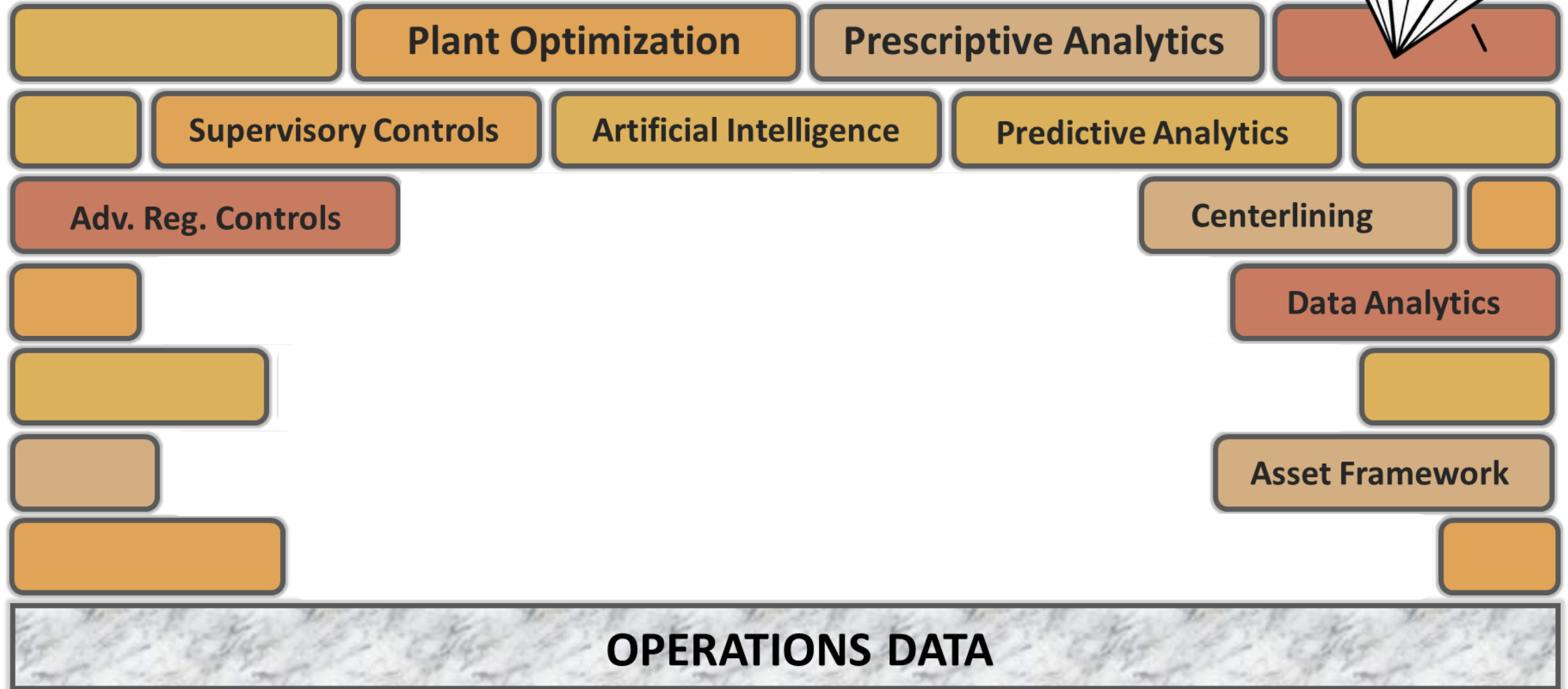


“Sixty percent of the time it works every time”
- Ron Burgundy (Anchorman)

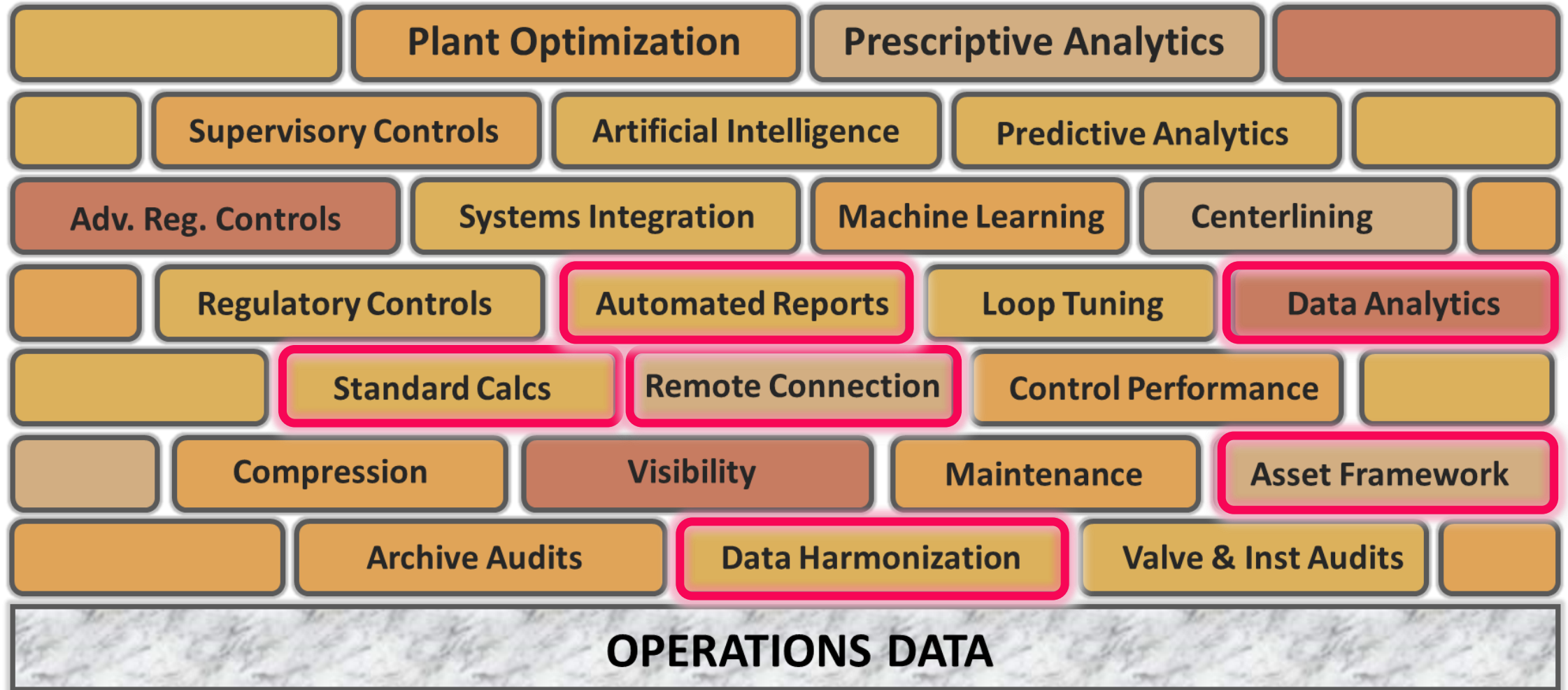
First things first...



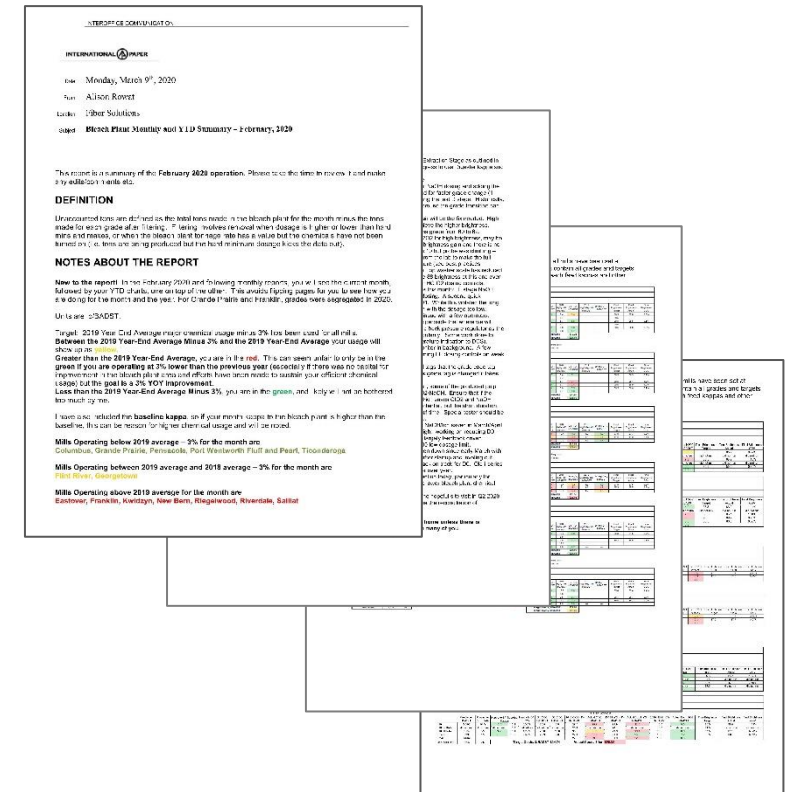
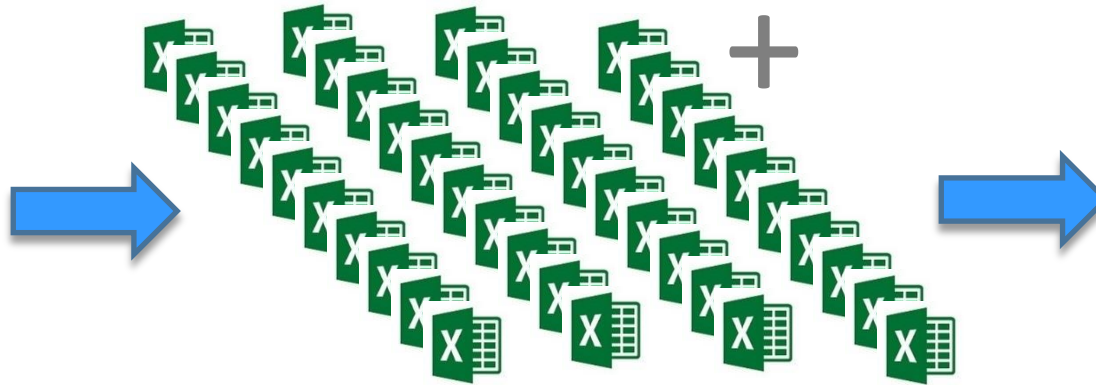
Impact of Layer Focus



Our Challenge...



Facing the challenge - Prototype



Source data:

- PI Data Archives, multiple sites
- Manual data extraction

Data transformation:

- Customized calculations per prod. line.
- Data is imported, filtered, and conditioned (manually)
- Data visualizations exported manually

The Product:

- Enterprise performance report
- Issued monthly via email

Status Quo (2019)



Typical Local PI System Database
(unstructured data)
30,000 to 75,000 tags



Raw Data to Insights – The Status Quo

Analytical Spreadsheets



Excel

Operational Dashboards



PI ProcessBook

Local PI System Database



AVEVA

To empower your SME's [Subject Matter Experts] with insight-rich information that they can access remotely, **you need data that is normalized and contextualized.**

– C. Harclerode (June 2020)

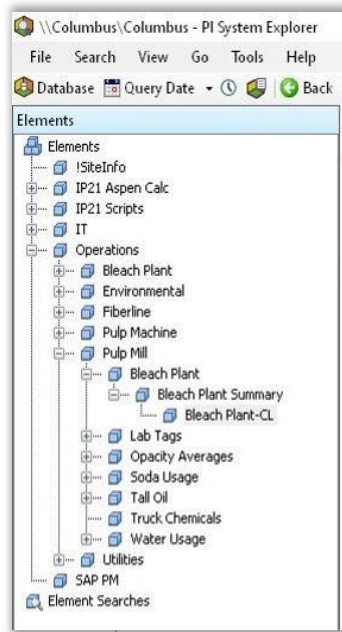


Foundational

AVEVA

Adding structure to the Foundation

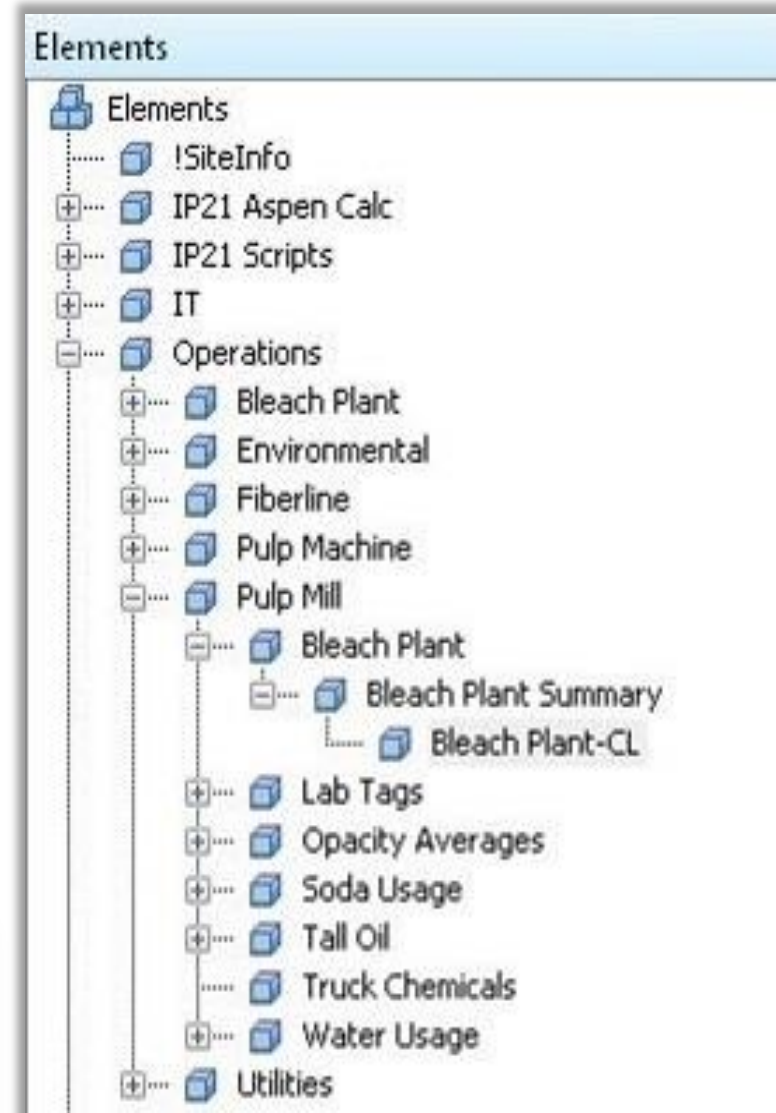
PI Asset Framework



PI Tags



Local PI System Database



Adding structure to the Foundation

The screenshot displays the PI System Explorer interface for a 'Bleach Plant Summary'. The main window shows a table with columns for Name, Value, Description, and Settings. The table is organized into categories: Summary, Configuration, and Inputs. A right-hand pane shows the properties for the selected 'Brightness-Final' element.

Category	Name	Value	Description	Settings
Category: 0_Summary	Brightness-Final	Filtered	Final Brightness	\\SBB1PIP1\CL.BleachPlant.Brightness-Final
	Grade-Current-15m	Bales	Current APC Grade for Bleach Plant	\\SBB1PIP1\CL.BleachPlant.Grade-Current-15m
	Lbs-ClO2-Lagged-Final	No Data	Pounds ClO2 Used in Last 15 Minu...	\\SBB1PIP1\CL.BleachPlant.Lbs-ClO2-Lagged-Final
	Lbs-H2O2-Lagged-Final	No Data	Pounds H2O2 Used in Last 15 Min...	\\SBB1PIP1\CL.BleachPlant.Lbs-H2O2-Lagged-Final
	Lbs-Mg(OH)2-Lagged-Final	No Data	Pounds Mg(OH)2 Used in Last 15 ...	\\SBB1PIP1\CL.BleachPlant.Lbs-Mg(OH)2-Lagged-Final
	Lbs-NaOH-Lagged-Final	No Data	Pounds NaOH Used in Last 15 Min...	\\SBB1PIP1\CL.BleachPlant.Lbs-NaOH-Lagged-Final
	Production-Rate-Converted	0 ADTPD	Production Rate Converted ADST/D	\\SBB1PIP1\CL.BleachPlant.Production-Rate-Converted
	Production-Rate-Filtered	Filtered	Production Rate Filtered to Specifi...	\\SBB1PIP1\CL.BleachPlant.Production-Rate-Filtered
	Production-Tons-Bleached	No Data	Bleached Tons Produced in Past 1...	\\SBB1PIP1\CL.BleachPlant.Production-Tons-Bleached
	Total-ClO2-Lagged-Final	No Data	Total ClO2 Converted to lb/ADST ...	\\SBB1PIP1\CL.BleachPlant.Total-ClO2-Lagged-Final
	Total-H2O2-Lagged-Final	No Data	Total H2O2 Converted to lb/ADST...	\\SBB1PIP1\CL.BleachPlant.Total-H2O2-Lagged-Final
	Total-Mg(OH)2-Lagged-Final	No Data	Total Mg(OH)2 Converted to lb/A...	\\SBB1PIP1\CL.BleachPlant.Total-Mg(OH)2-Lagged-Final
	Total-NaOH-Lagged-Final	No Data	Total NaOH Converted to lb/ADST...	\\SBB1PIP1\CL.BleachPlant.Total-NaOH-Lagged-Final
Category: Configuration	Bleach Plant Line Name	Columbus	Bleach Plant Name	
	Bleach Plant Yield	96 %	Bleach Plant Yield	
	Final Brightness Stage	D2	Final Brightness Measurement Stage	
	Mill-Day	10/20/2020 7:00:00 AM	Mill Start of Day	\\SBB1PIP1\SiteInfo.SOD-PIWrite.AF
	OutputTagPrefix	CL.BleachPlant.	Output TagName Prefix	
	SAP-FL	UNDEF	SAP Functional Location	
	SAP-Material-Code	0	SAP Material Code	
	SAP-Material-Description	0	SAP Material Description	
Category: Inputs	D0-ClO2-Converted	0 lb/ADT	D0 ClO2 (lb/ADST)	\\SBB1PIP1\CL.BleachPlant.D0-ClO2-Converted
	D0-Grade-Stage-15m	CX	D0 APC Grade 15min	\\SBB1PIP1\CL.BleachPlant.D0-Grade-Stage-15m
	D0-Kappa-Inlet-15m	7.62439346313477 Kappa	D0 Stage Kappa Inlet 15min Avg	\\SBB1PIP1\CL.BleachPlant.D0-Kappa-Inlet-15m
	D0-Kappa-Outlet-15m	No Data	D0 Stage Kappa Outlet 15min Avg	\\SBB1PIP1\Missing-PITag-No-Data
	D0-Tower-Capacity	24.2508488403365 ADT	Tower Capacity in Standard Units	\\SBB1PIP1\CL.BleachPlant.D0-Tower-Capacity
	D1-Brightness-15m	78.4559020996094 Brightness	D1 Brightness 15min Avg	\\SBB1PIP1\CL.BleachPlant.D1-Brightness-15m
	D1-Brightness-Target-15m	84.5 Brightness	D1 Brightness Target 15min Avg	\\SBB1PIP1\CL.BleachPlant.D1-Brightness-Target-15m
	D1-ClO2-Converted	0 lb/ADT	D1 ClO2 (lb/ADST)	\\SBB1PIP1\CL.BleachPlant.D1-ClO2-Converted

Calc'd values for summary

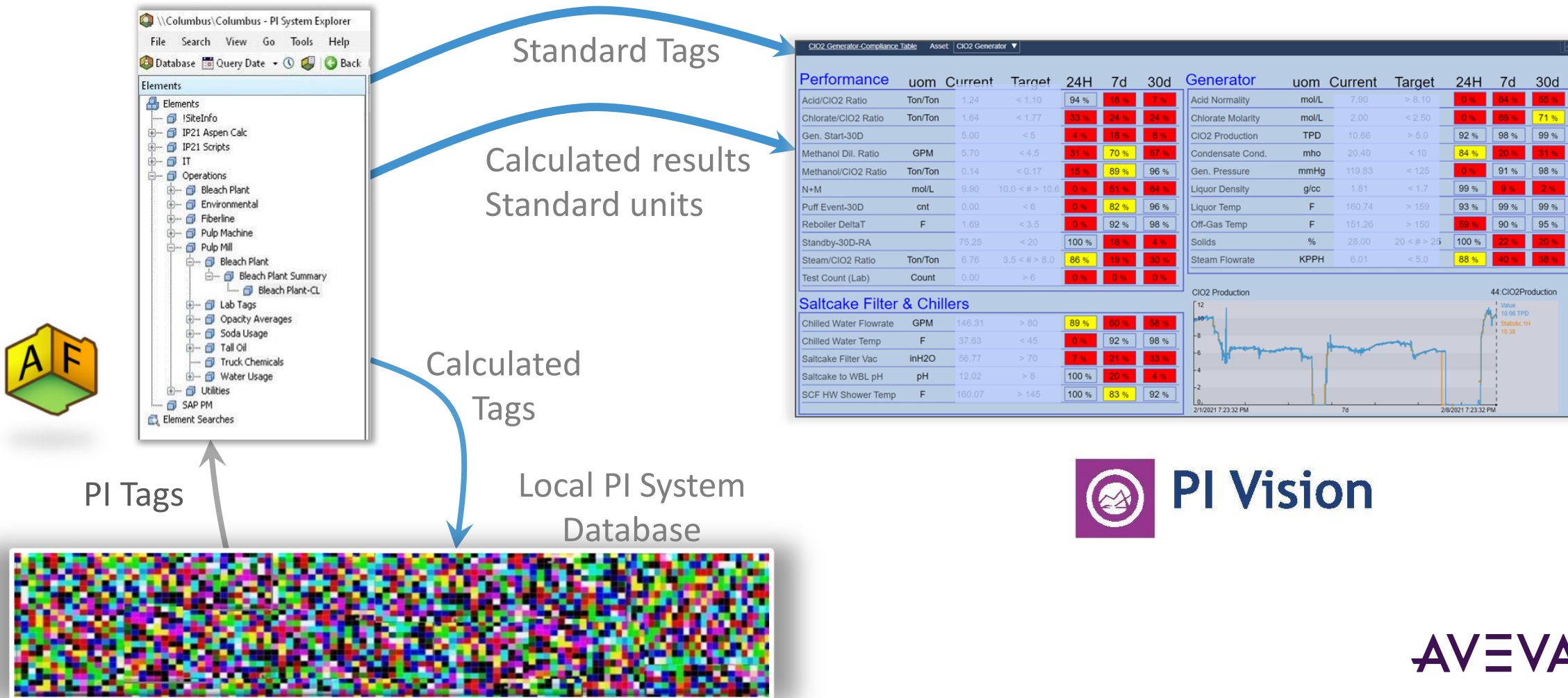
General info relating to the specific mill

Inputs to the bleach plant

Adding structure to the Foundation

PI Asset Framework

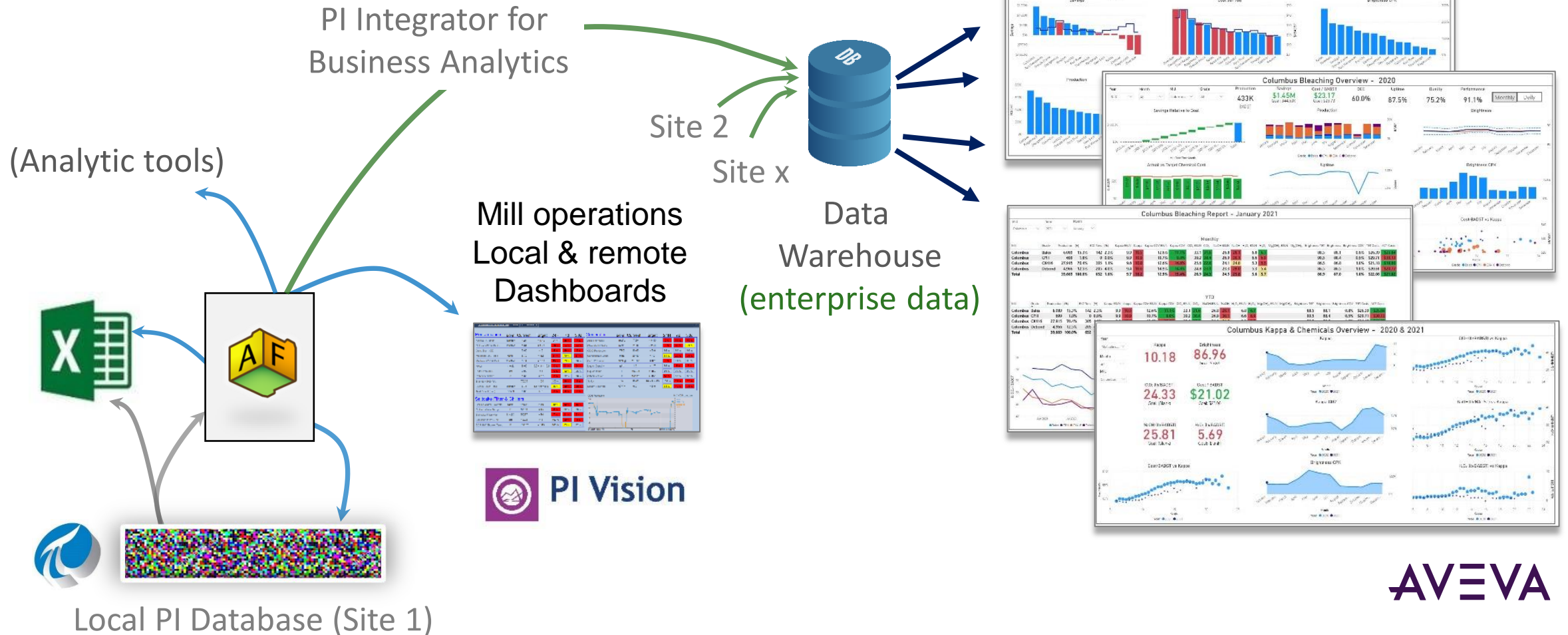
Operational Dashboards



Raw Data to Insights – The bigger picture

Operational

Strategic



Raw Data to Actionable Insights – Strategic

INTERNATIONAL PAPER

Monday, March 9th, 2020

Alison Rowett

Liber Solutions

March Plant Monthly roll 119 Summary - February, 2020

This report is a summary of the February 2020 operation. Please refer to the time to review it and make any adjustments as needed.

DEFINITION

Unaccounted tons are defined as the total tons made in the bleach plant for the month minus the tons made for each grade of all types. It may include unaccounted tons if there is a change in the grade of the mill or if the grade of the mill is not reported. It may also include unaccounted tons if the grade of the mill is not reported. It may also include unaccounted tons if the grade of the mill is not reported.

NOTES ABOUT THE REPORT

New to the report: In the February 2020 report, you will see the amount of unaccounted tons for each grade of all types. The amount of unaccounted tons for each grade of all types is shown in the report. The amount of unaccounted tons for each grade of all types is shown in the report.

Unaccounted tons are defined as the total tons made in the bleach plant for the month minus the tons made for each grade of all types. It may include unaccounted tons if there is a change in the grade of the mill or if the grade of the mill is not reported. It may also include unaccounted tons if the grade of the mill is not reported. It may also include unaccounted tons if the grade of the mill is not reported.

Target: 2019 Year-End Average major chemical usage minus 3% has been used for all mills. Between the 2019 Year-End Average Minus 2% and the 2019 Year-End Average your usage will show in red. Greater than the 2019 Year-End Average, you are in the red. This can occur only if you are in the green. If you are operating at 3% lower than the previous year (66,000) it means you are in the green. Cut the goal by a 3% YOY improvement. Less than the 2019 Year-End Average Minus 3%, you are in the green, and it will be an excellent result for you.

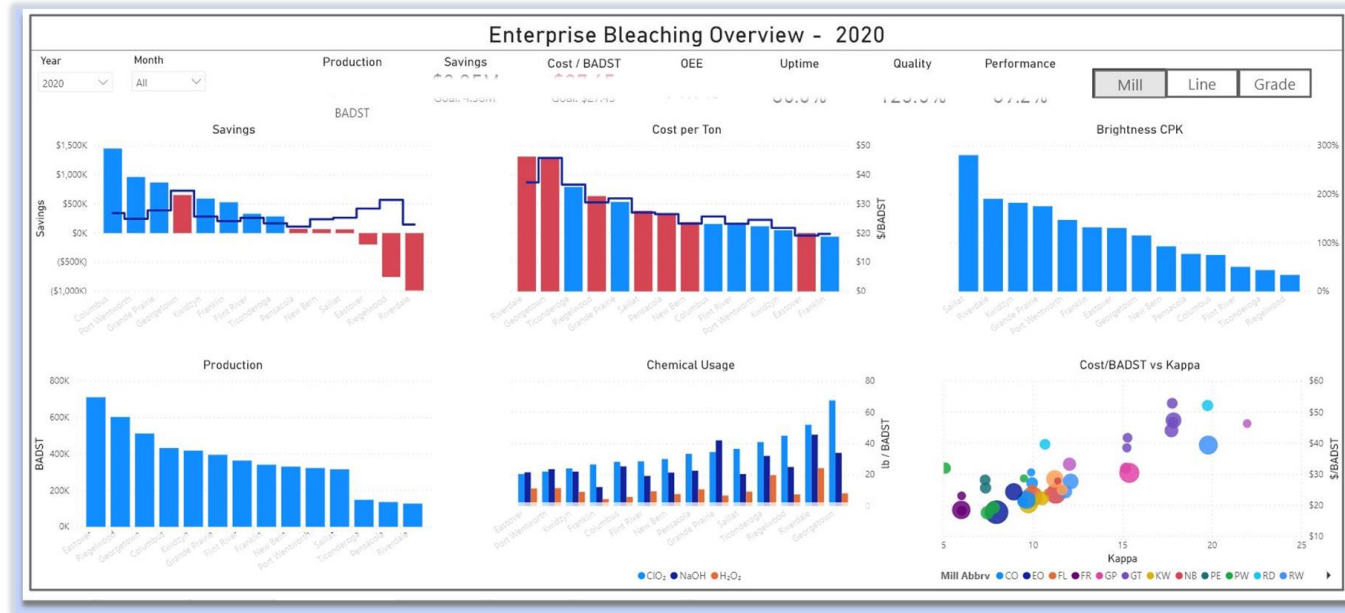
I have also included the baseline kappa on if your kappa is higher than the baseline, this can be reason for higher chemical usage and will be noted.

Mills Operating below 2019 average - 3% for the month are:
 Coonsee, Grande Prairie, Peninsula, Port Wessely, Trail and Pearl, Tioconderoga

Mills Operating between 2019 average and 2019 average - 3% for the month are:
 Fort River, Georgetown

Mills Operating above 2019 average for the month are:
 Eastman, Frontline, Inventory, New Bern, Okanagan, Riverside, Sault

Table showing detailed data for various mills and metrics.



Impact / Savings

- The prototype moved the process performance audit from a manual / periodic process to an automatic / ad-hock process.
- Eliminated the steps of manual manipulation and conditioning of raw data .
- Increased the speed of visualizing insights from enterprise raw data
- Increased visibility should lead to compounding value
 - Releasing data from current silo's
 - Freeing data to be remotely available (website access)
 - Leading to residual increases in creativity from expanded use
- Means of proactively reducing process performance erosion over time

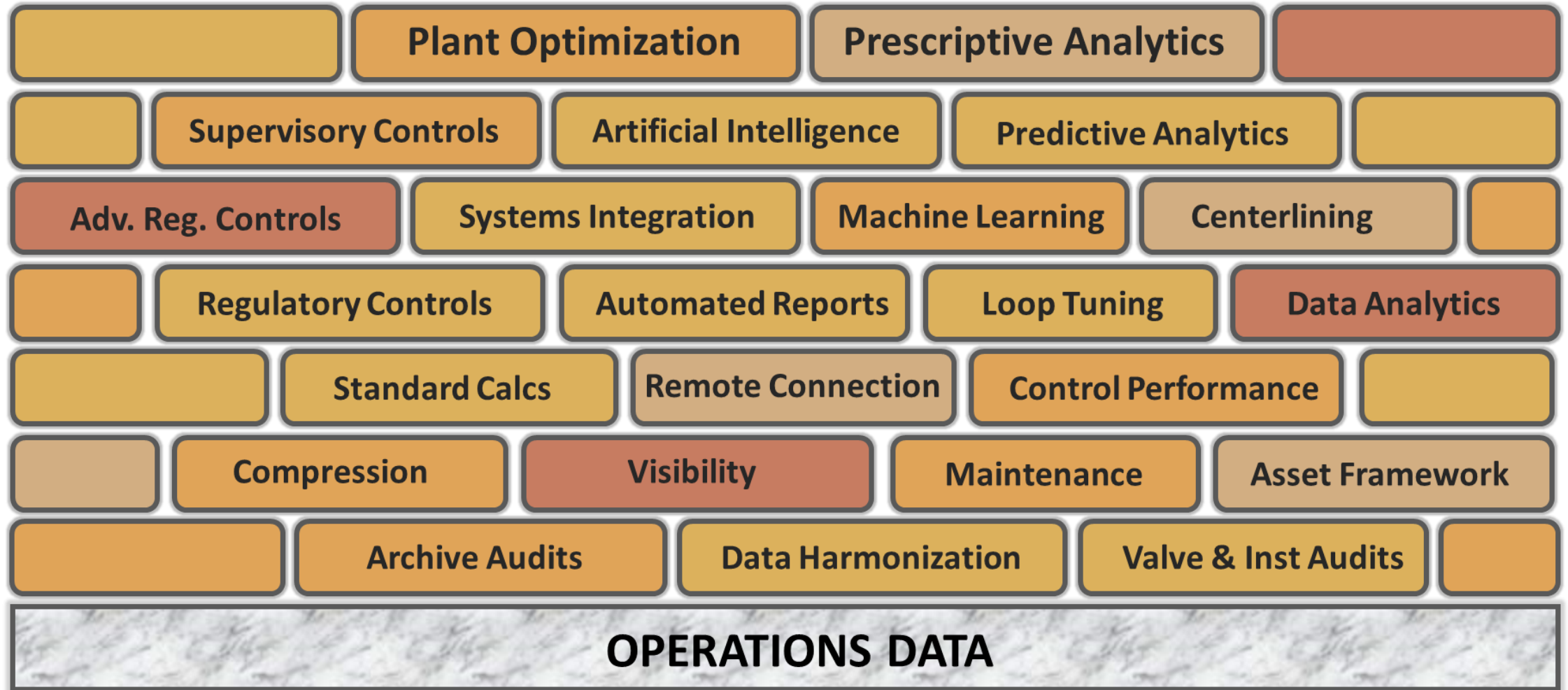


Key takeaways

- ❖ Building a strong “Foundation” is a critical and very necessary step for developing analytics of any kind or complexity



Build upon a strong Foundation...



Key takeaways

- ❖ Building a strong “Foundation” is a critical and very necessary step for developing analytics of any kind or complexity
- ❖ Concept of moving away from manual reporting will likely meet resistance initially
- ❖ Utilizing existing tools improved the speed of development and acceptance.
- ❖ Prototyping to show end product had a profound effect on user engagement.
- ❖ The initial prototype fueled expansion of the idea into an enterprise wide initiative



THANK YOU

謝謝

DZIĘKUJĘ CI

NGIYABONGA

TEŞEKKÜR EDERİM

DANKIE

TERIMA KASIH

GRACIES

WHAKAWHETAI KOE

DANKON

TANK

TAPADH LEAT

SALAMAT

SPASIBO

GRAZIE

MATUR NUWUN

ХВАЛА ВАМ

MULŢUMESC

PAKMET CIZGE

고맙습니다

GRAZIE

شكرا

FAAFETAI

ESKERRIK ASKO

GO RAIBH MAITH AGAT

HVALA

HVALA

БЛАГОДАРЯ

GRACIAS

MAHADSANID

TEŞEKKÜR EDERİM

ТИ БЛАГОДАРАМ

DANKJE

EΥΧΑΡΙΣΤΩ

GRATIAS TIBI

OBRIGADO

TAK DANKE

AČIŪ

SALAMAT

MAHALO IĀ 'ŌE

TAKK SKALDU HA

МЕРЦИ

RAHMAT

MERCI

GRAZZI

PAKKA PÉR

ありがとうございました

DI OU MÈSI

ĐAKUJEM

HATUR NUHUN

PAXMAT CAĠA

SIPAS JI WERE

TERIMA KASIH

CẢM ƠN BẠN

UA TSAUG RAU KOJ

ТИ БЛАГОДАРАМ


СИПОС


WAZVIITA

FALEMINDERIT

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.

 [linkedin.com/company/aveva](https://www.linkedin.com/company/aveva)

 [@avevagroup](https://twitter.com/avevagroup)

ABOUT AVEVA

AVEVA, a global leader in industrial software, drives digital transformation for industrial organizations managing complex operational processes. Through Performance Intelligence, AVEVA connects the power of information and artificial intelligence (AI) with human insight, to enable faster and more precise decision making, helping industries to boost operational delivery and sustainability. Our cloud-enabled data platform, combined with software that spans design, engineering and operations, asset performance, monitoring and control solutions delivers proven business value and outcomes to over 20,000 customers worldwide, supported by the largest industrial software ecosystem, including 5,500 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 6,000 employees at 90 locations in more than 40 countries. For more details visit: www.aveva.com