Think Big, Start Small, Go Fast

Lessons Learned Deploying PI AF to 30+ Offshore O&G platforms

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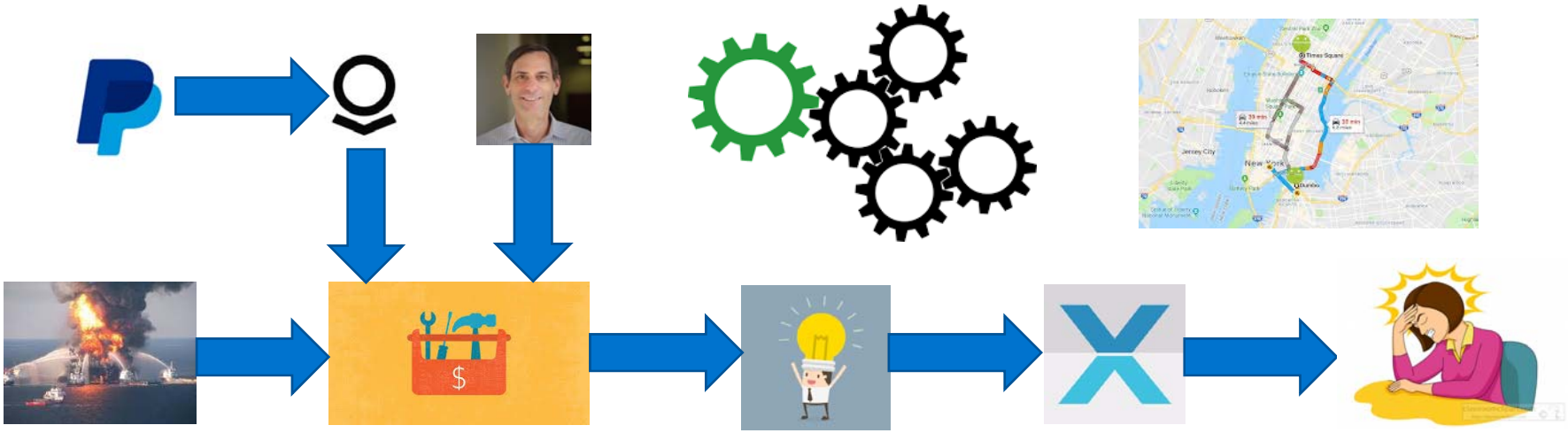
How It All Began



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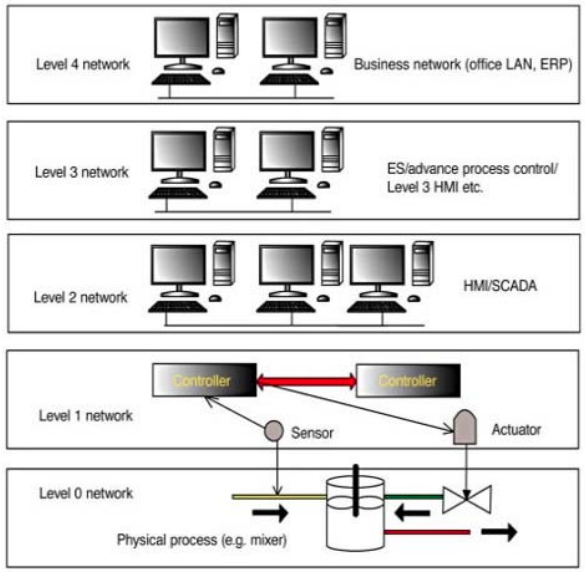
The Problem – Data Structure Complexity

- **Level 4** – **Business Network** - Microsoft Office, SAP, Maximo, PowerBI, Spotfire, OSIsoft PI System
- **Level 3 – DMZ or Process Information Network** - Advance Process Control, operator workstations (secondary information from control system). Operator Rounds
- **Level 2** – **Control Network** - DCS (Distributed Control System) - HMI, Alarm and Event Log, Alarm Management System, OSIsoft PI System
- **Level 1** – **Device Network** - Sensors, local controllers, independent protective systems such as safety shutdown controllers (Triconix), Vibration (Bentley-Nevada), Electrical Protection (Multilin), HART (instrumentation protocol – sensors, control valves)



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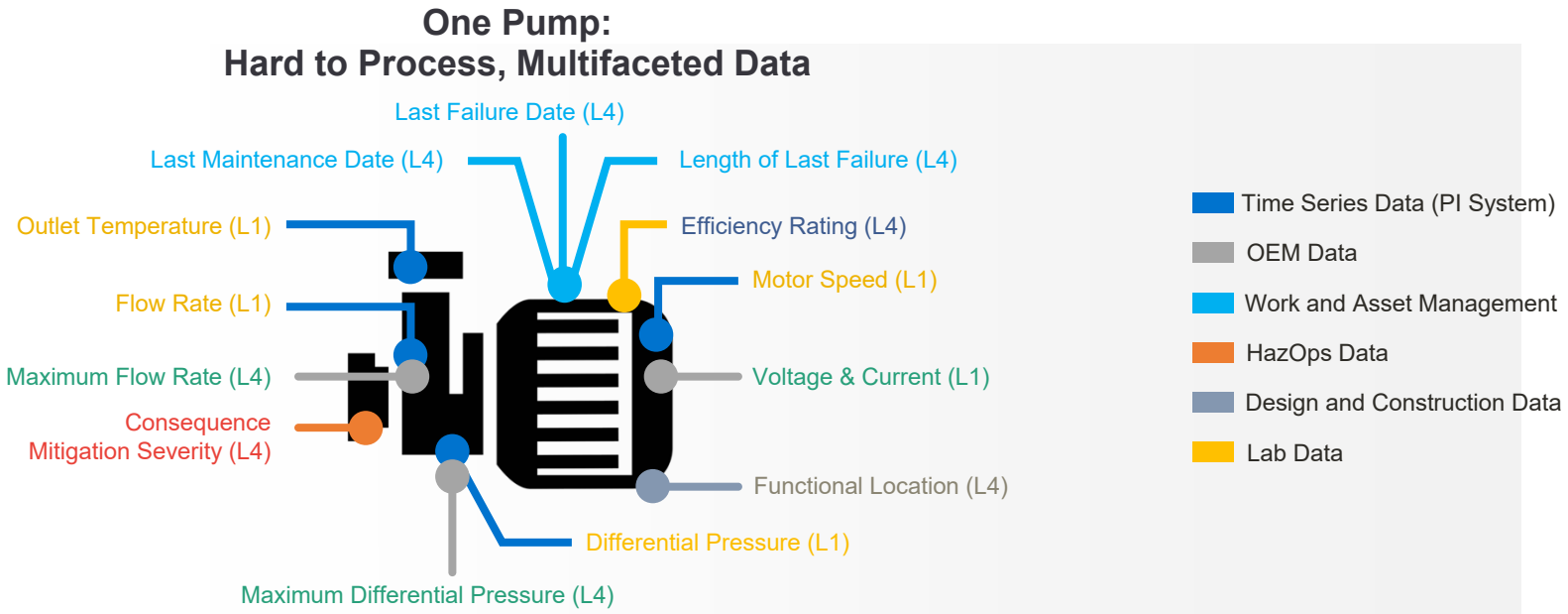
Our Challenge for a single piece of equipment



The time-series data in our PI System became our ‘analytics heartbeat’ but we needed to put it in context

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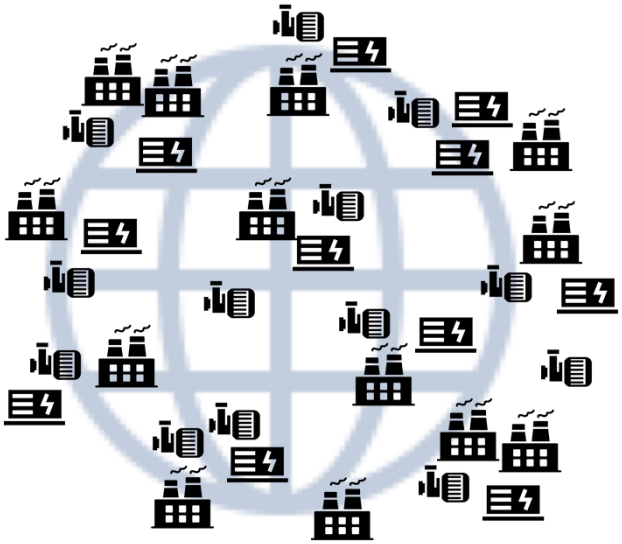
Across all 30 Upstream Assets it was unmanageable

1,000 's of pumps + thousands of other target equipment across dozens of production sites



RESULTS IN

Virtual Blind Spots in Decision Making

The last mile **doesn't scale**

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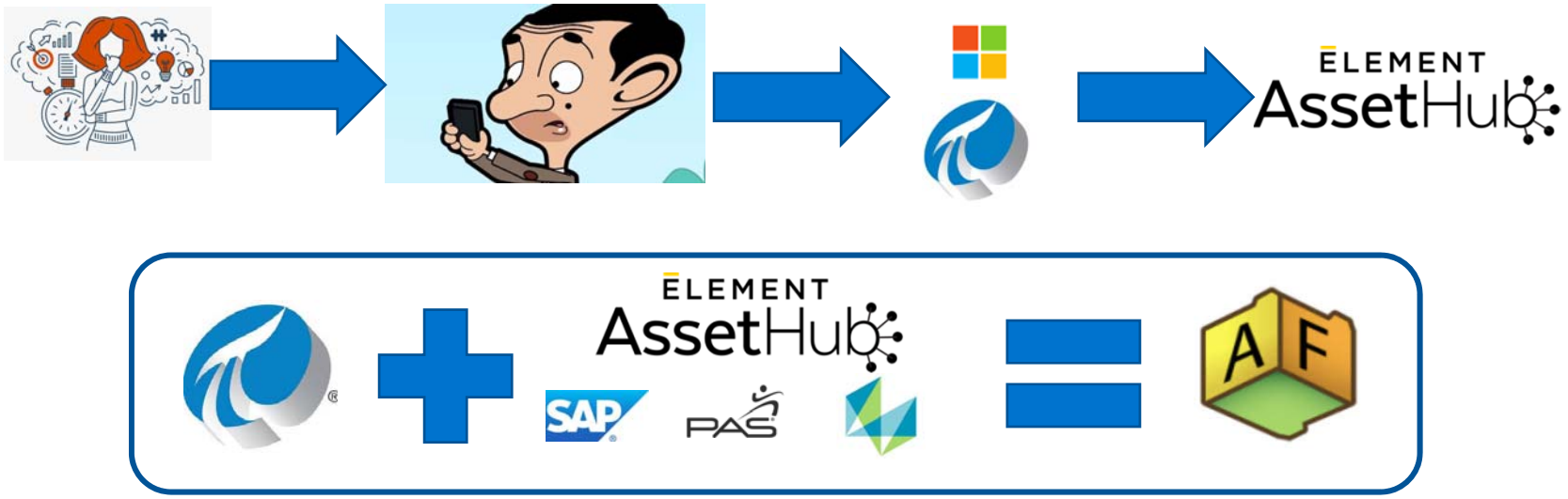
Finding a Solution – The Industrial Data Method



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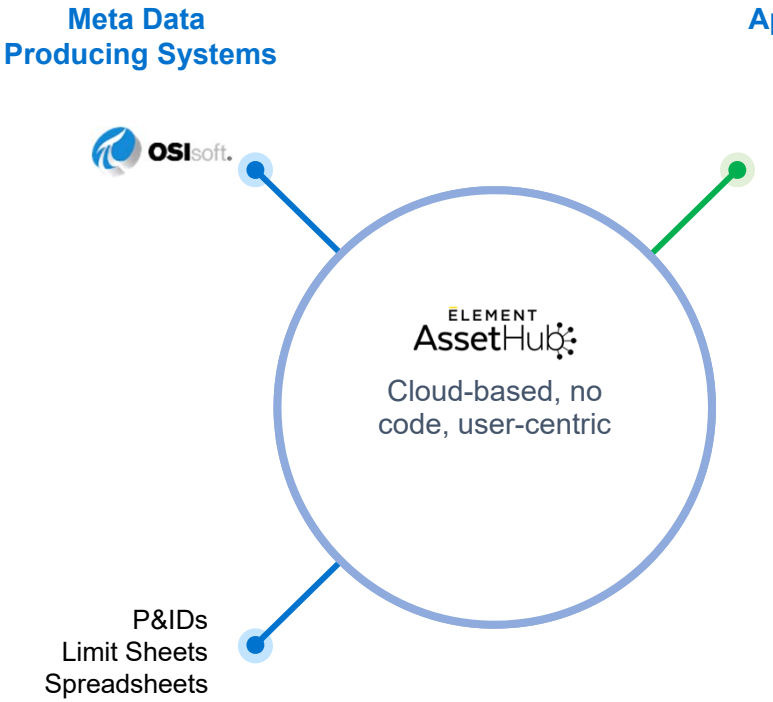
Start Small – The First Iteration



- From:
  - 18 person-months
  - 1 solution to 1 problem (disposable)
- To:
  - 1 person month
  - 1 solution to many problems (reusable)

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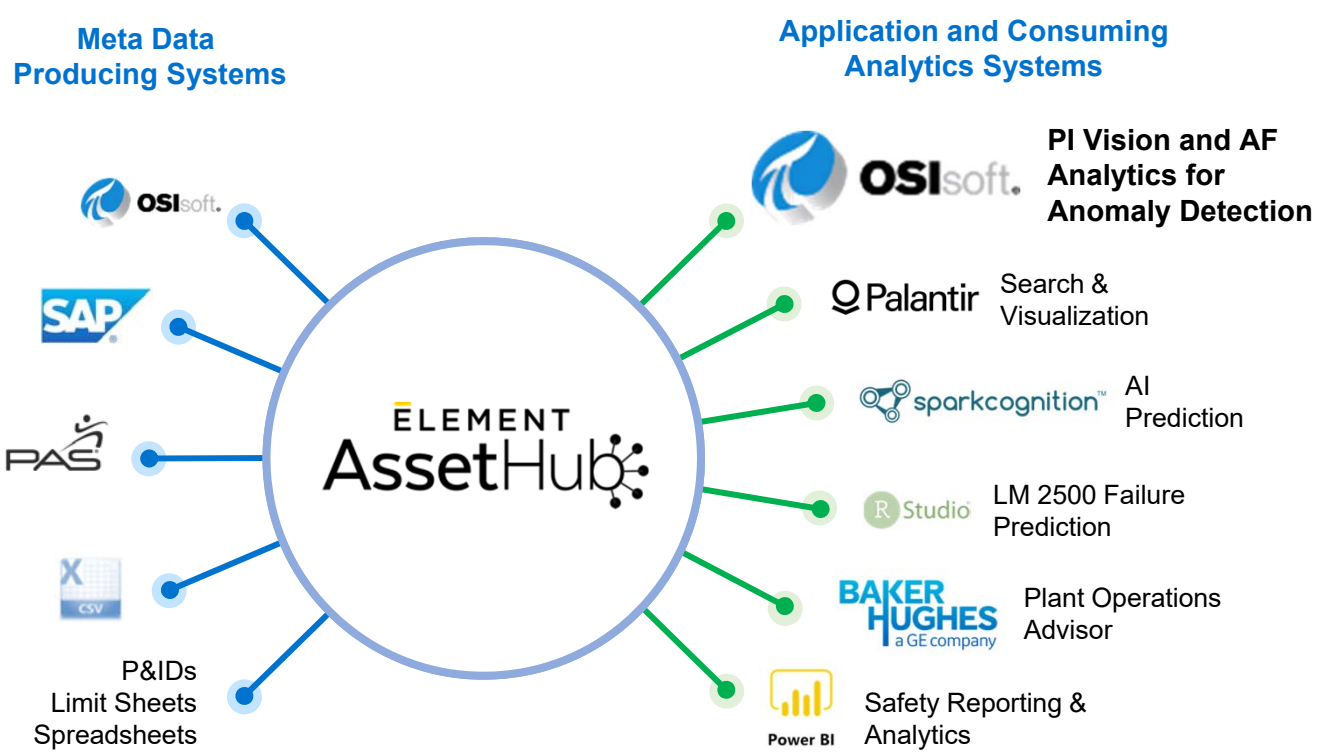
Go Fast – Building As We Learned



Enterprise Value

30x less time to analytics

73 use cases

9000 data sources

1.5m sensor streams

$16m savings

$1b ROI

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In A Nutshell

- The traditional way

$13m over 8 years

- The modern (new) way

Ramping up to $1b/yr by year 8

$4m over 2 years

Ramping to $1b/yr in 2 yrs

1/3 Implementation Cost
4X Faster Time to Value
Double the NPV of the Returns

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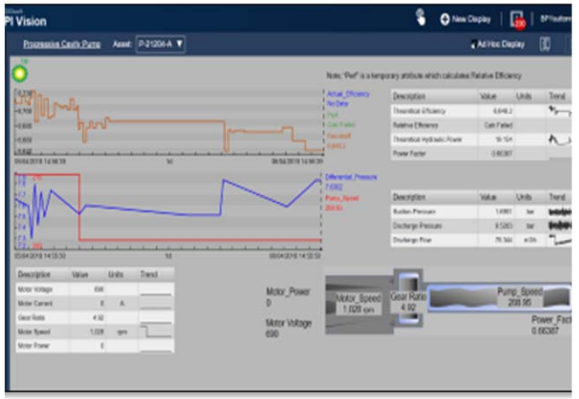
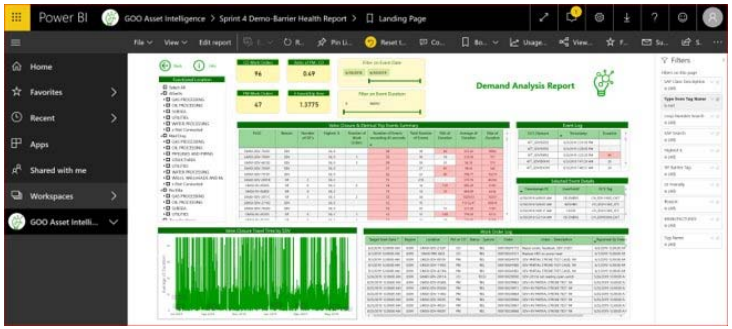
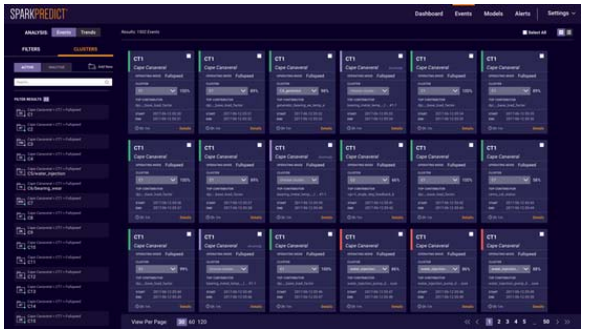
Examples of Industrial Data Put to Work

- Global deployment of standard PI Vision analytics 6 per quarter global deployment (1 use case yielded $400m/yr)
- Enabled rapid building of Machine Learning for entire offshore platforms (3 months)
- Turned 13 days/month of safety reporting into a live PowerBI screen (0 days/month)







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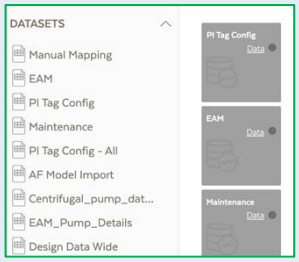
Deploy and maintain PI Asset Framework models

1 Connect

Easily load asset information from OSIsoft PI System and other business systems

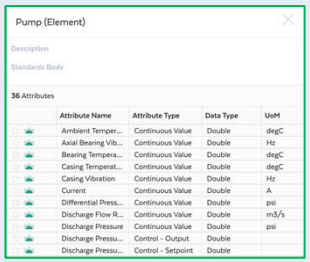
- JDBC / ODBC
- Scheduled updates



2 Standardize

Enable cross comparison of assets

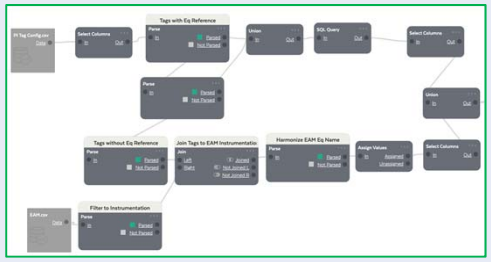
- Starter templates
- AF template compatibility



3 Transform

Clean up raw data into a common format

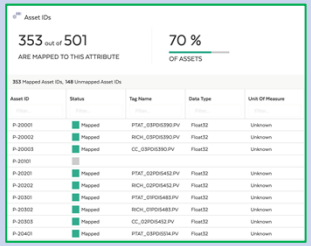
- Regular expressions
- Fuzzy logic
- No code



4 Maintain Trust

Establish confidence in data model

- AF mapping gaps and validation
- Identify bad tag data



5 Govern and Maintain

Pivot model into AF hierarchies

- Update and sync AF
- Identify local AF changes

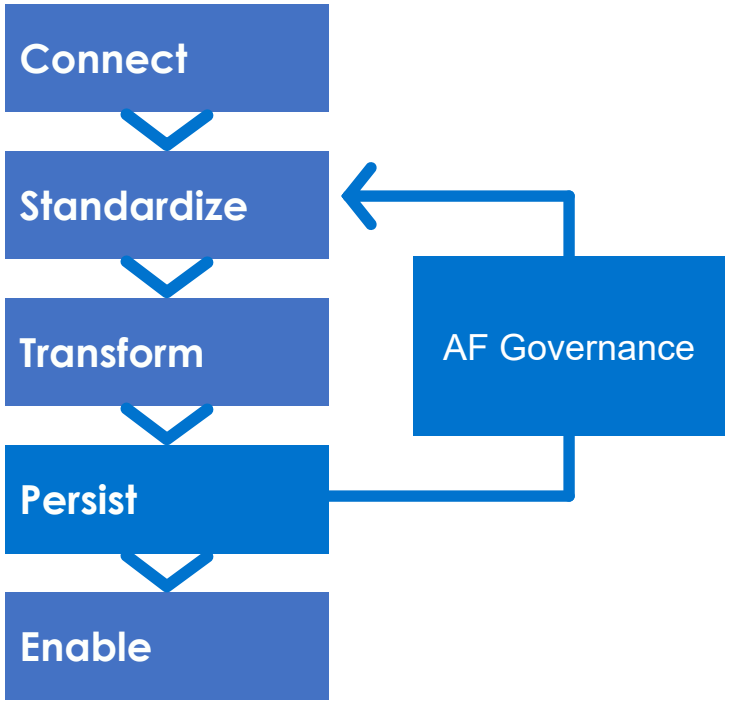
6 AF-Enabled Applications

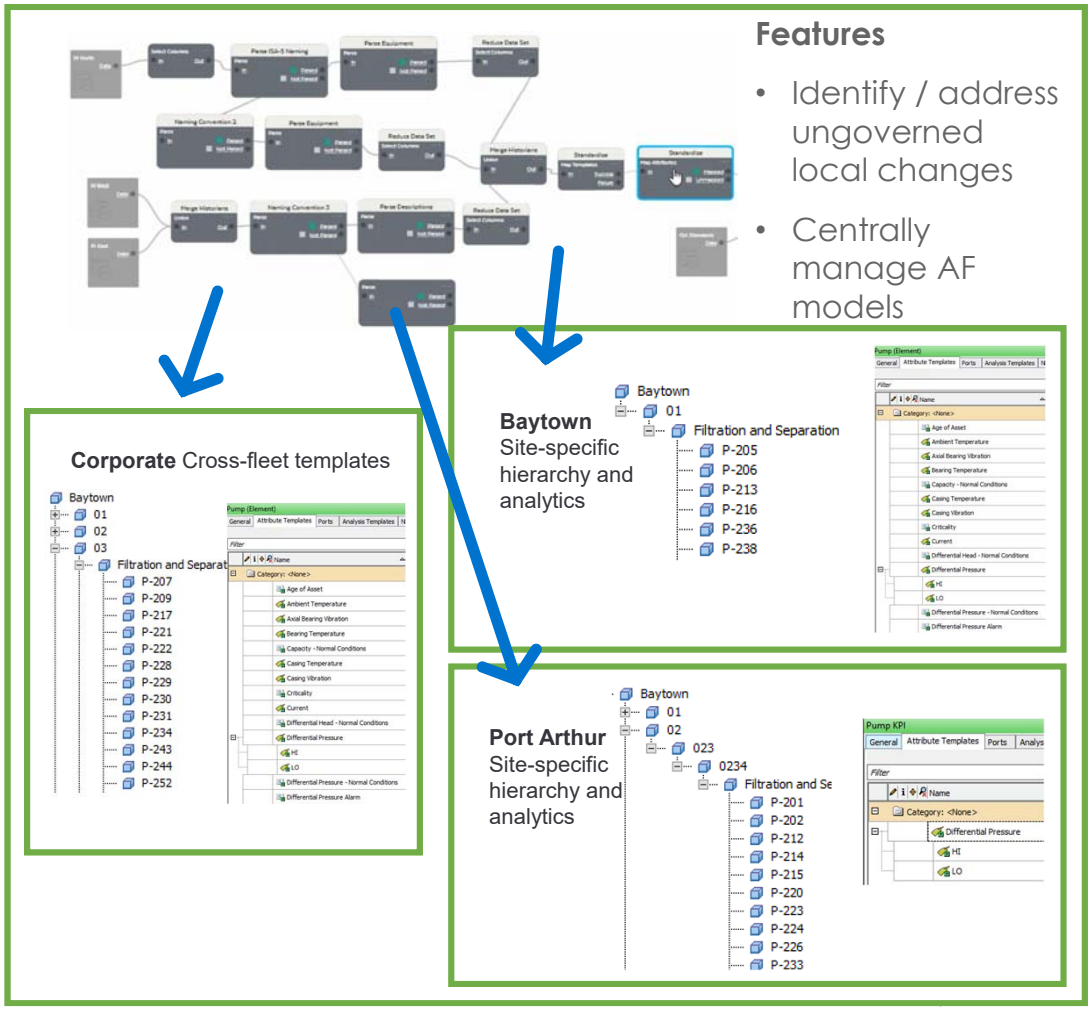
Enable engineering community to identify & predict failure of critical equipment

Software Demo

AF Governance

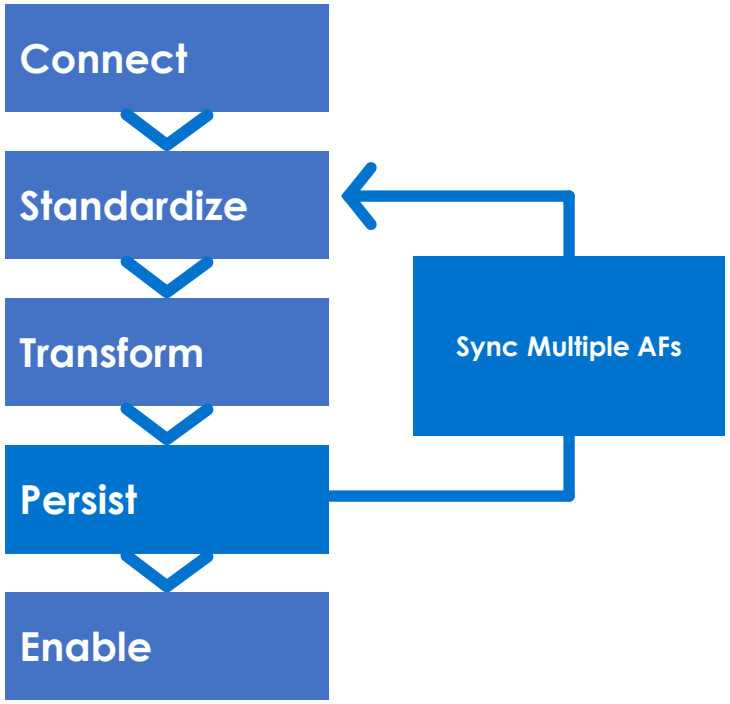
Empower sites and ensure corporate standards

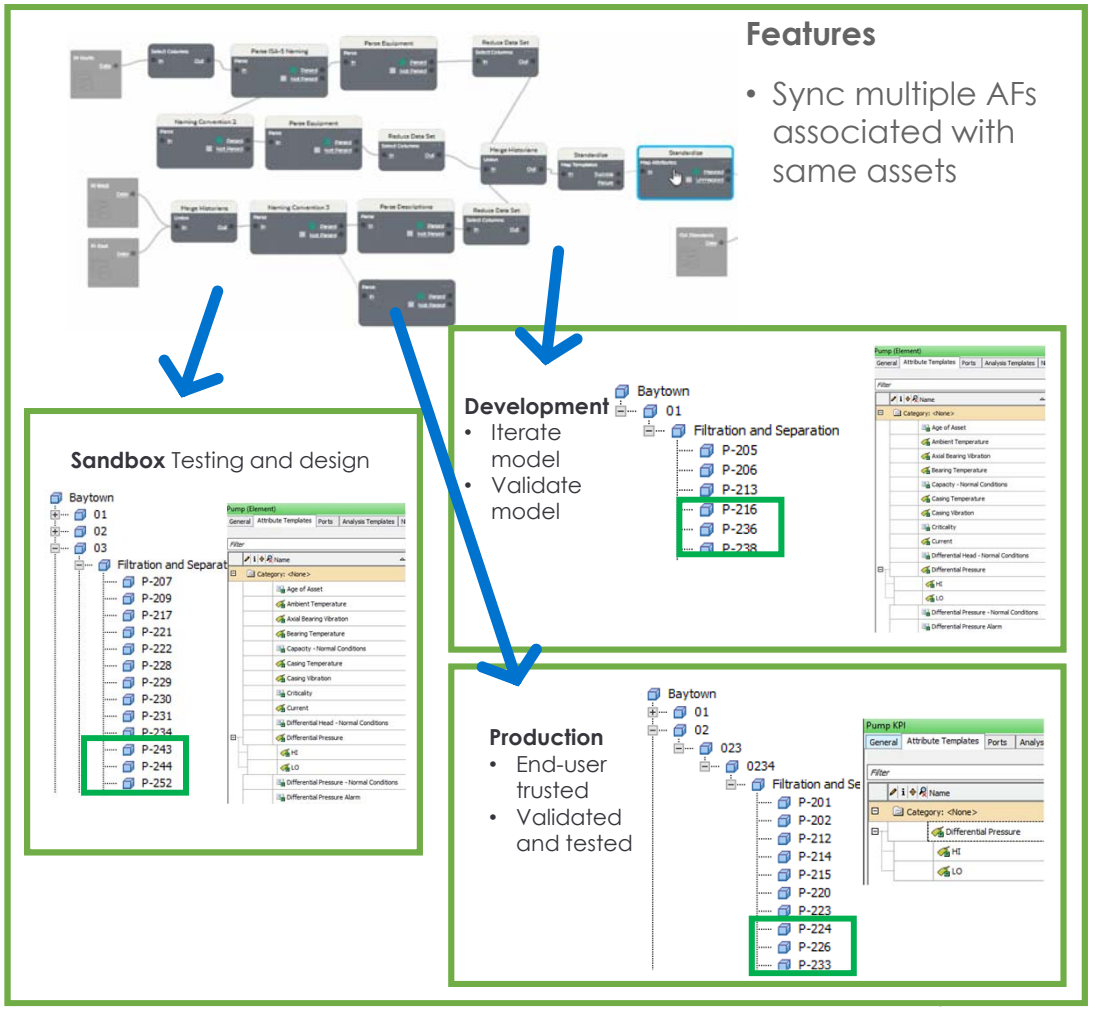




AF Synchronization

Keep multiple AFs in sync





Lessons Learned: *Think Big, Start Small, Go Fast*

- **Plan for scaling from day 1 -** Build once with the idea of using many times
- **Use Agile Methodology** – Experiment, fail fast, involve the users daily
- **Deliver value fast (solve 1 problem first)** – good enough and move on
- **Deliver value incrementally (go fast)** - deliver partial value quickly
- **POC's don't scale** - Don't have a science fair. Prove value —> Scale!
- **REMOTE WORK is suited to this methodology! Do it now!** JUST DO IT.

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How to Learn More

CUSTOMER STORY

Watch Covestro's PI World presentation for more insight into how PI AF is being used to support digital transformation

SURVEY

Take the Element AF Survey!

Give us a call to get started with AssetHub & AF Accelerator

officehours@elementanalytics.com

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Summary

ELEMENT

CHALLENGES

- Upstream Operations moving faster than our ability to deliver PI AF.
- No single AF hierarchy could possibly meet our needs
- AF models were often out of data before we could commission them.

SOLUTION

- Built asset modeling strategy on AssetHub
- Model once, consume everywhere
- Enterprise AF Governance
- Agile industrial data methodology

BENEFITS

- Enabled standard deployment of PI Vision displays.
- Single use case delivered $400 million/year savings
- Decreased time to analytics by 30x

"Think Big, Start Small, Go Fast"

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Speaker Info

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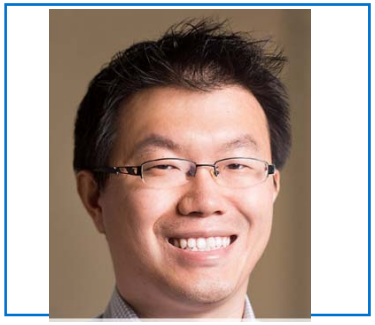

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