

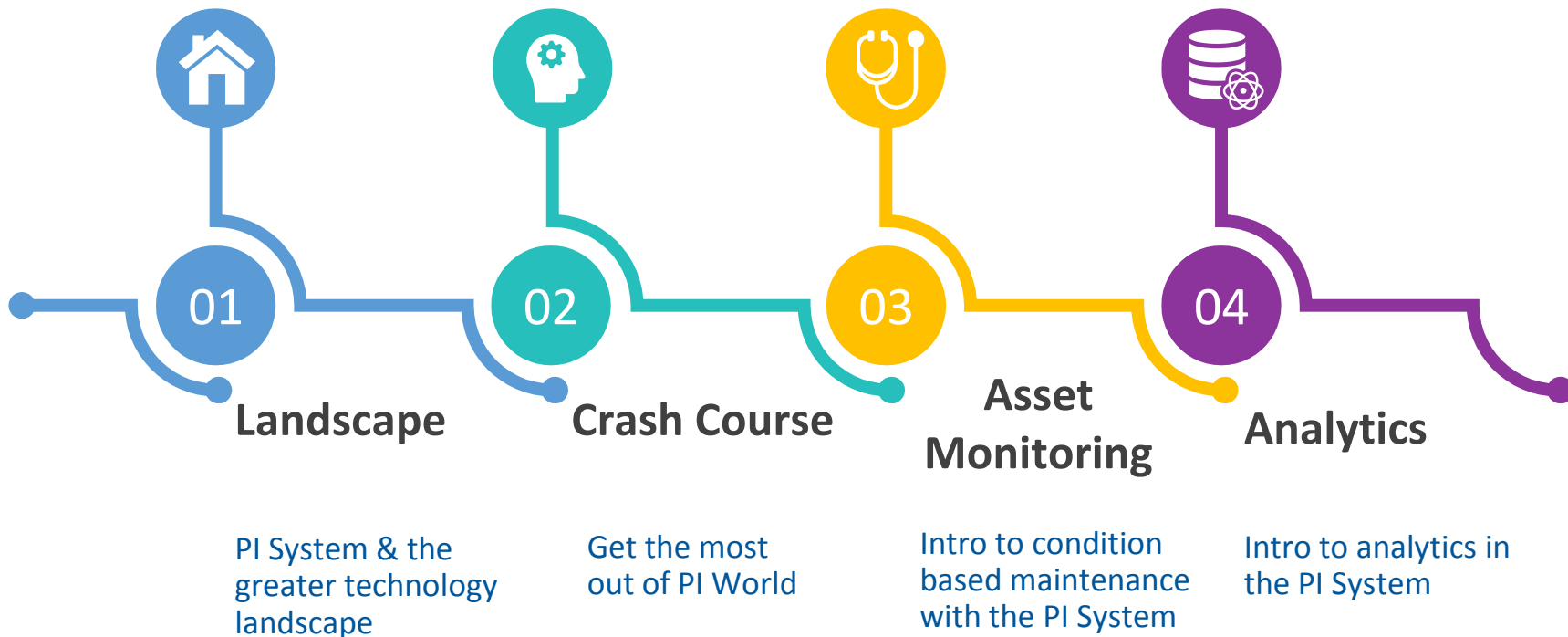
PI System & the Greater Technology Landscape

Jeremy Korman
Product Marketing Manager



Intro to PI System Track:

New to PI System? We'll get you up to speed!



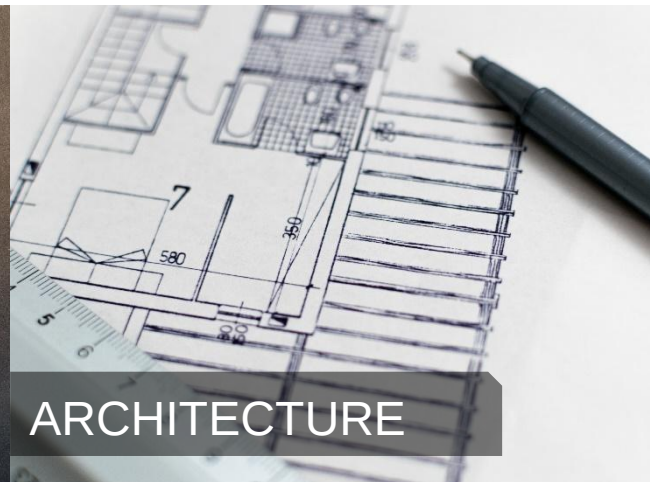
Questions we will address in this talk



PI SYSTEM



LANDSCAPE



ARCHITECTURE

What's the problem?

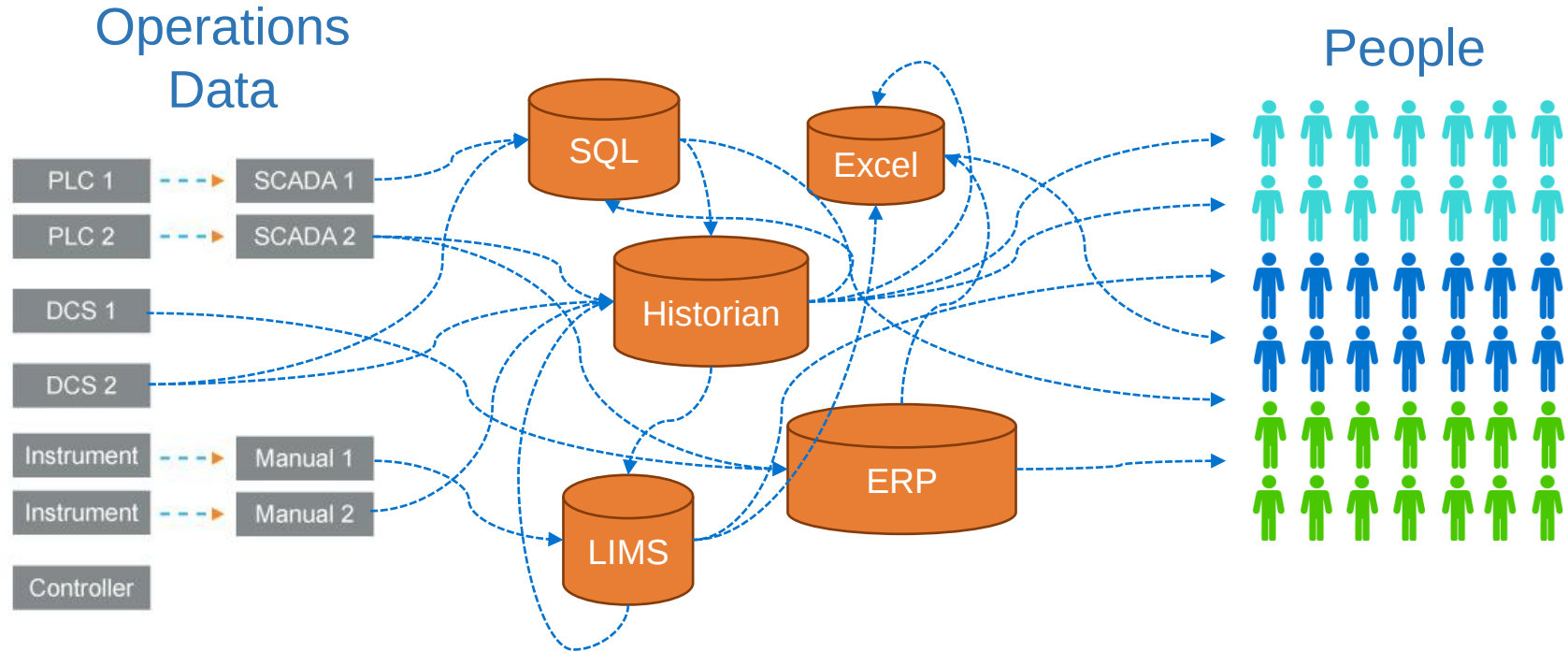
What's different about operational data?

What does a basic deployment look like?

A perspective view of a long, empty hallway with glass walls and a reflective floor. The hallway is flanked by tall, dark-framed glass walls that reflect the bright light at the far end. The floor is highly reflective, mirroring the walls and the light. The perspective draws the eye towards a bright, glowing light source at the far end of the hallway, creating a sense of depth and openness. The sky visible through the glass walls is a clear, light blue with some faint clouds.

What's the Problem?

Connecting People and Operations Data is Hard

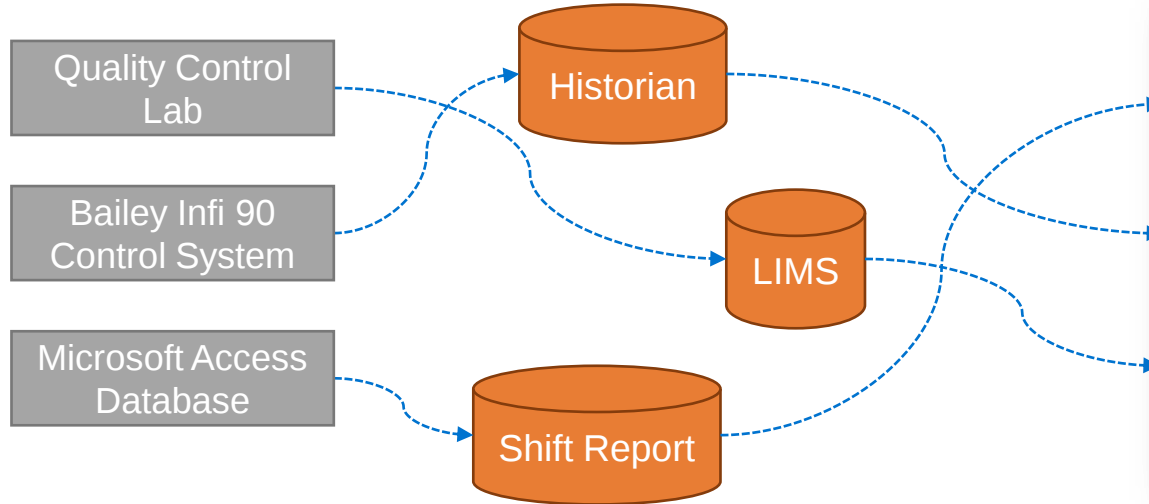


Let's Make This Real...

Operations
Data

Me

(+12 other People)



The Morning Standup Meeting

	Goal	Sun	Mon	Tues	Wed	Thur	Fri	Sat
14th St Tons	20 tons			?	21	5	21	0
15th St Tons	> 22			?	?	17	22	15
14th Avg Feed	> 40 gpm	☺	☺	?	40	?	25	7
15th Avg Feed	> 45 gpm	40	30	Good	70	40		
NaY Avg Feed	> 90 gpm							
Cogel Avg Feed	> 120 gpm							
WW Levels	< 60%	?	?	?	?	?	90	50

Manual



Error Prone



Time Consuming



Operators Hated It



An Opportune Time



Our Improved Dashboard



Automatic



Fast



Accurate

	Goal	Sun	Mon	Tue	Wed	Thur
14th Final	>20 tons	20	21	20	20	20
		21	20	21	21	21
15th Final	>22 tons	22	21.5	22	22	22
		23	24	22	23	24
14th Feed	>40 gpm	44	43	42	41	42
		45	47	43	42	40
15th Feed	>45 gpm	47	46	45.5	45	44
		43	43	44	45	47
Na Feed	>90 gpm	91	90.5	93	92	81
		92	92	95	94	93
Cogel Feed	>120 gpm	120	122	124	122	120
		119	127	127	123	120
Waste Water	<60%	40	45	50	30	20
		40	45	50	30	20

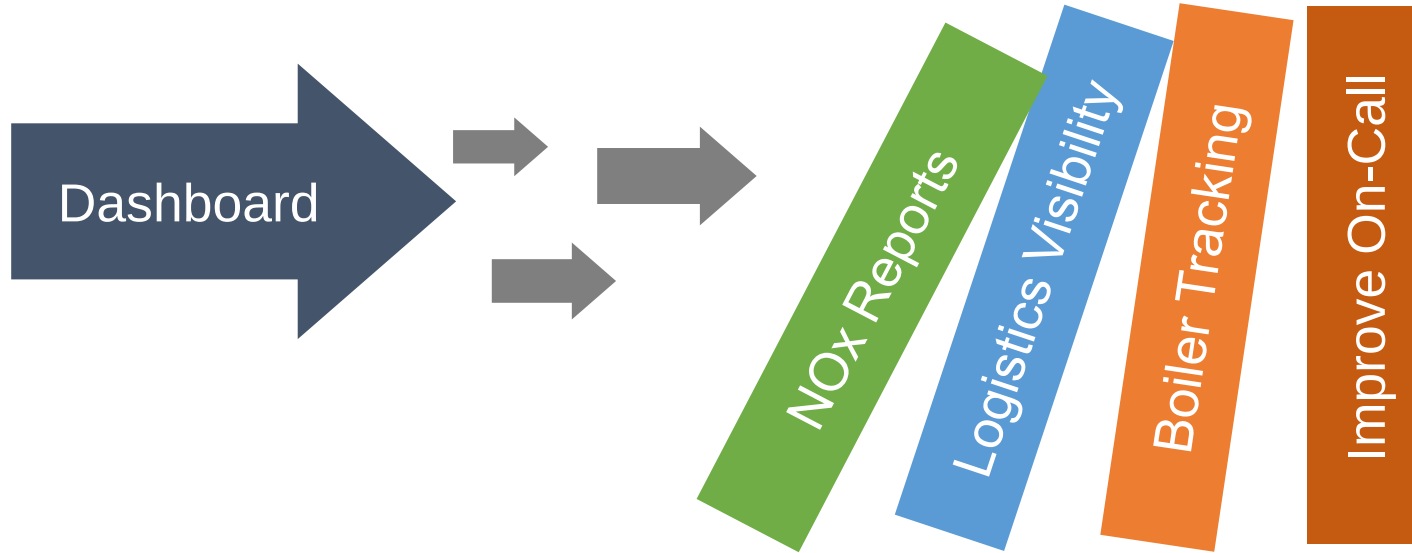
From 40 min



..... to 40 sec

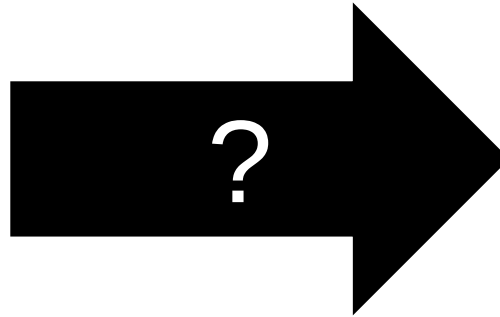


The First Domino Had Fallen

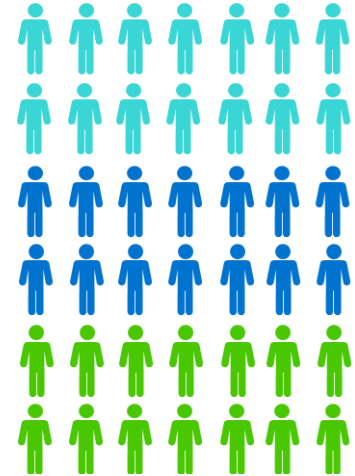


Connecting People with Operations Data is Hard

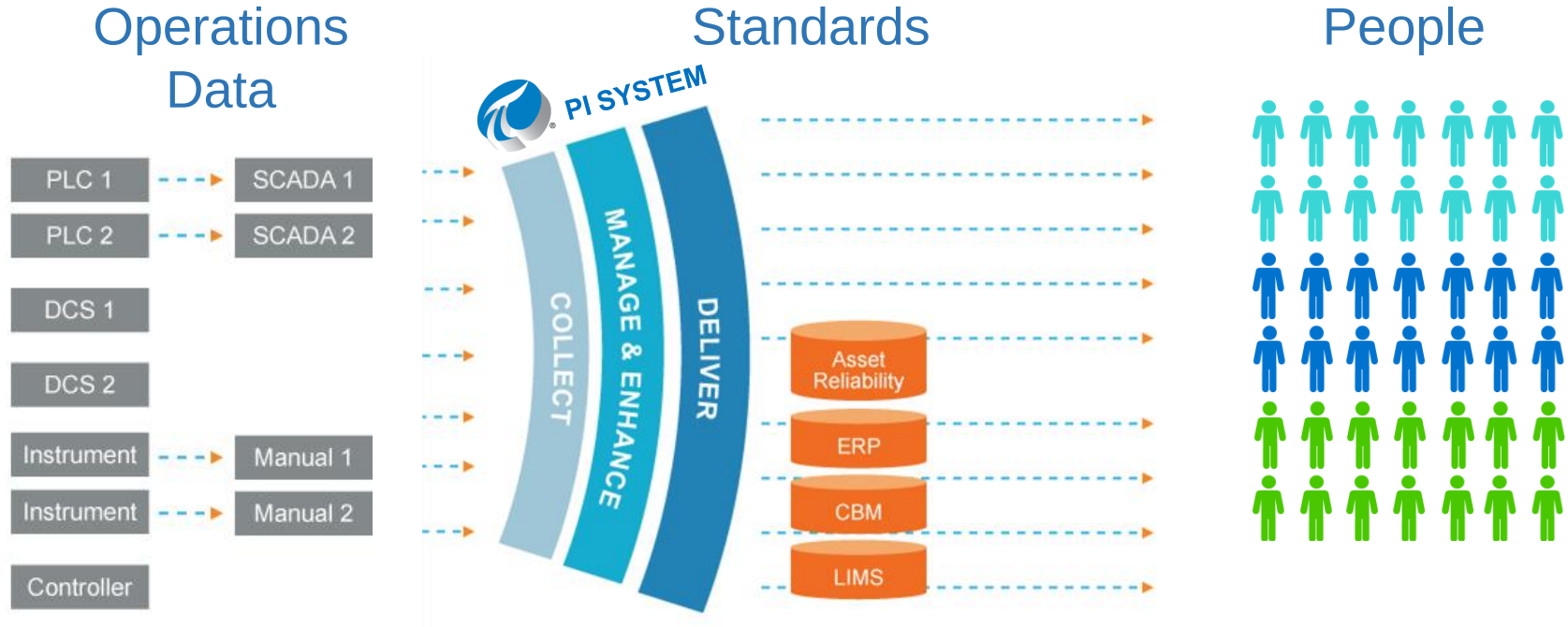
Operations Data



People



An Infrastructure for Critical Operations



An Infrastructure Approach

Delivers a critical resource in a **reliable** way to any **person** or application when **needed**



The Data Landscape

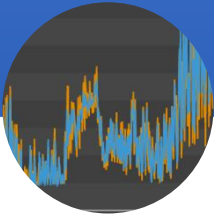


Common Types of Data

Time Series



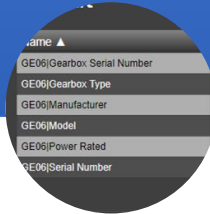
Temp Probe



Relational



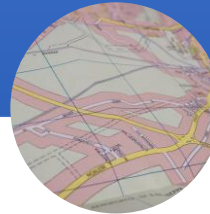
Pump Specs



Geospatial



Maps



Unstructured



Pictures





BOILER
ROOM



LOGISTICS

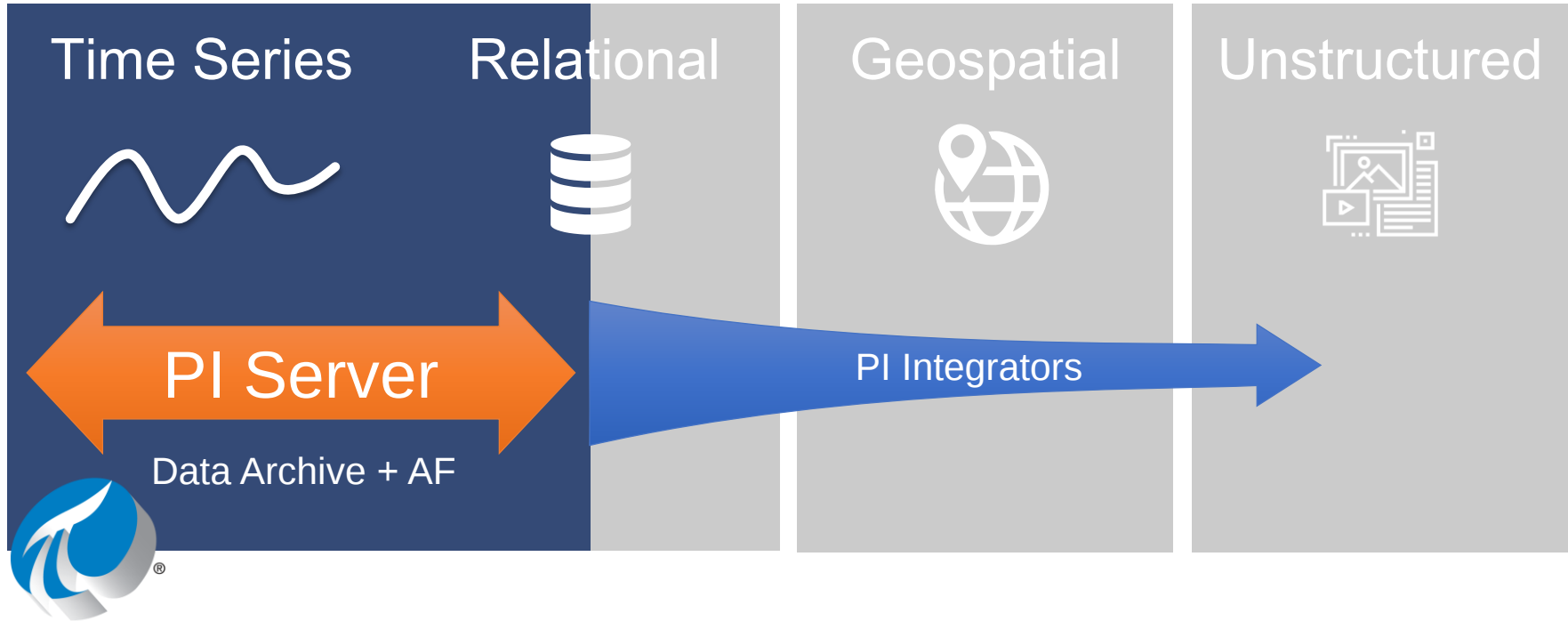


CORPORATE



Everyone uses data
Not all data is the same

We Specialize in Operational Data



Answers are in the data, but it's often hard to understand

What is this?

Temperature
Speed
Batch ID
Distance



37

From what?

Boiler
Pump
Truck
Transformer



What units?



°F or °C
mi/hr
psi

Where is it?



HQ
Off-shore
Springfield

Raw data needs context to make it consumable information



Wind Turbine Detail

Asset: GE06

Ad Hoc Display



← GE06

Capacity
48,93 %Operating State
Load OperationEfficiency
14,401 %

Overheat Alarm

Turbine Availability
31,875 %

Links

[Thermal Details](#)[High Turbine Temp](#)

About

Name ▲	Value
GE06(Gearbox Serial Number	4800000-0000-0
GE06(Gearbox Type	WindEnergy
GE06(Manufacturer	Truvale
GE06(Model	T95-2MW
GE06(Power Rated	1 500
GE06(Serial Number	M000000

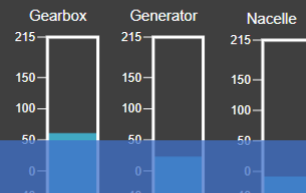
Nacelle

Blade Total Error
0,076527 °

Hydraulic Pressure



Temperatures

Current L1
668,9 ACurrent L2
661,9 ACurrent L3
1 337 AL1-N Voltage
320,6 VL2-N Voltage
318 VL3-N Voltage
322,4 V

Decision-support dashboards combine many data sources

Expected Power
571,57 kW

04/09/2017 13:25:33

7d

Now

11/09/2017 13:25:33

Wind Turbine Details Asset: GE06

Ad Hoc Display

← GE06

Capacity
48,93 %Operating State
Load OperationEfficiency
14,401 %

Overheat Alarm

Turbine Availability
99,99 %

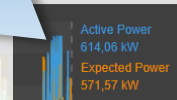
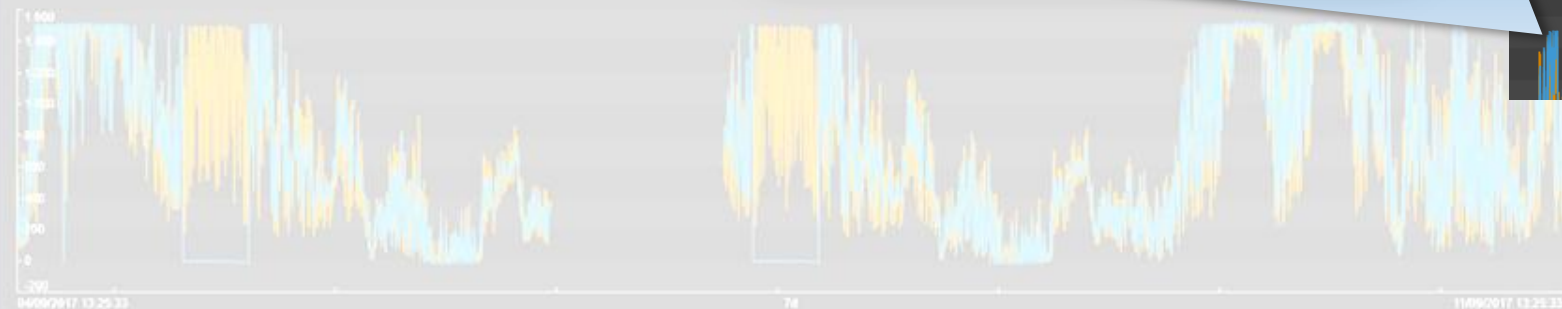
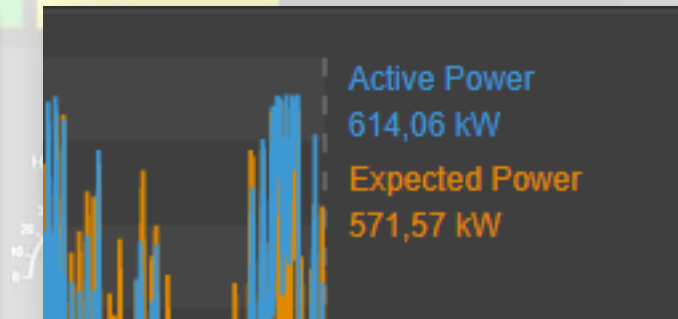
Links

[Thermal Details](#)
[High Turbine Temp](#)

About

Name: A
GE06Location: Europe
GE06Operative Type
GE06Manufacturer
GE06Model
GE06Power Rating
GE06Serial Number

- Real-time readings
- Predictive models



Wind Turbine Details Asset: GE06

Ad Hoc Display

← GE06

Capacity
48,93 %Operating State
Load OperationEfficiency
14,401 %

Overheat Alarm

Turbine Availability
91,075 %[Links](#)
[Thermal Details](#)
[High Turbine Temp](#)

About

Name ▲	Value
GE06 Gearbox Serial Number	4800000-0000-0
GE06 Gearbox Type	WindEnergy
GE06 Manufacturer	Truvalle
GE06 Model	T95-2MW
GE06 Power Rated	1 500
GE06 Serial Number	M000000

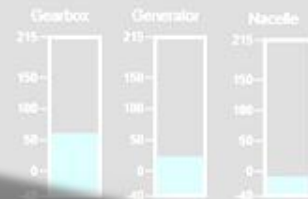
Nacelle

Blade Total Error
0,076527 °

Hydraulic Pressure



Temperatures

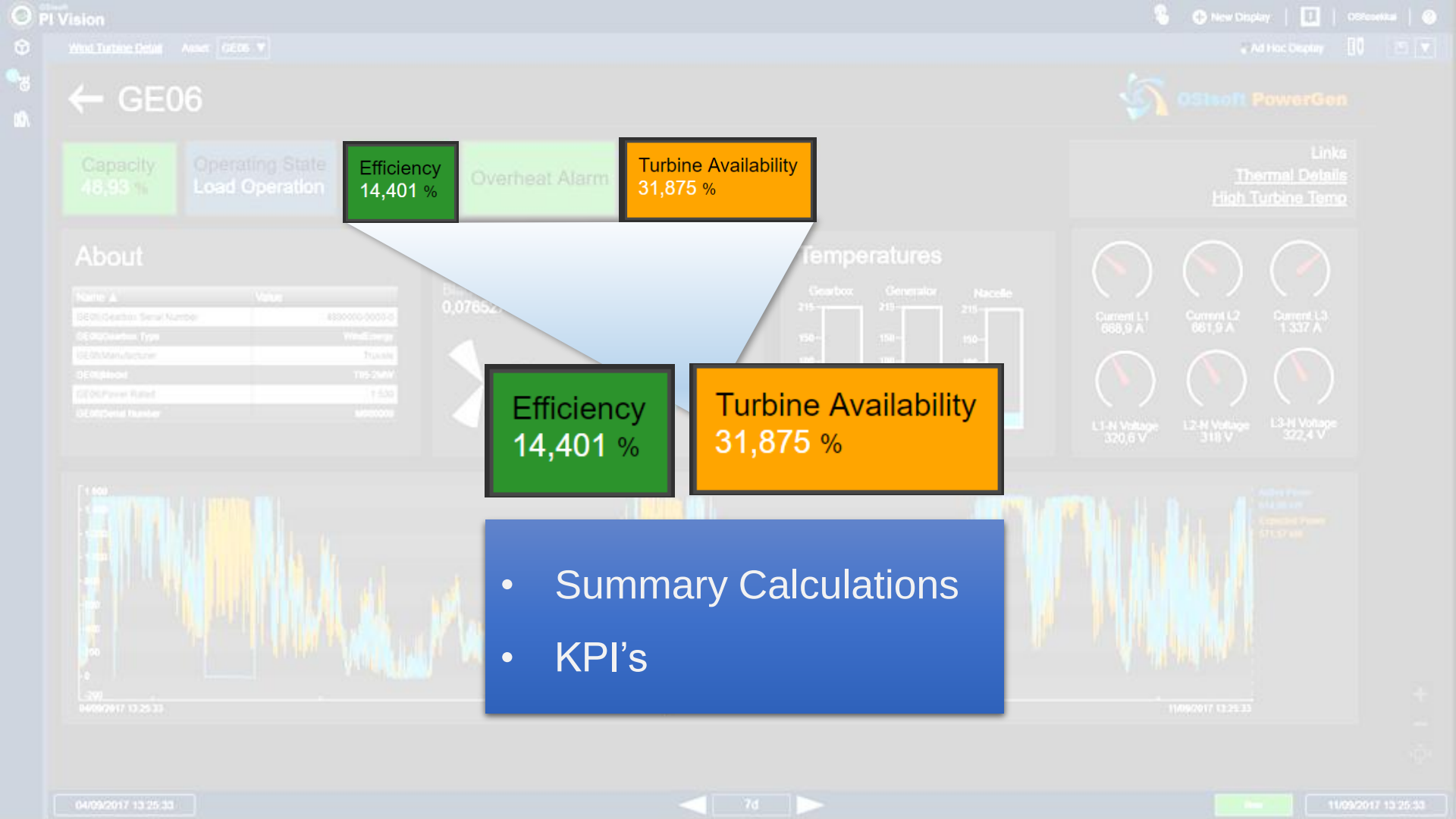


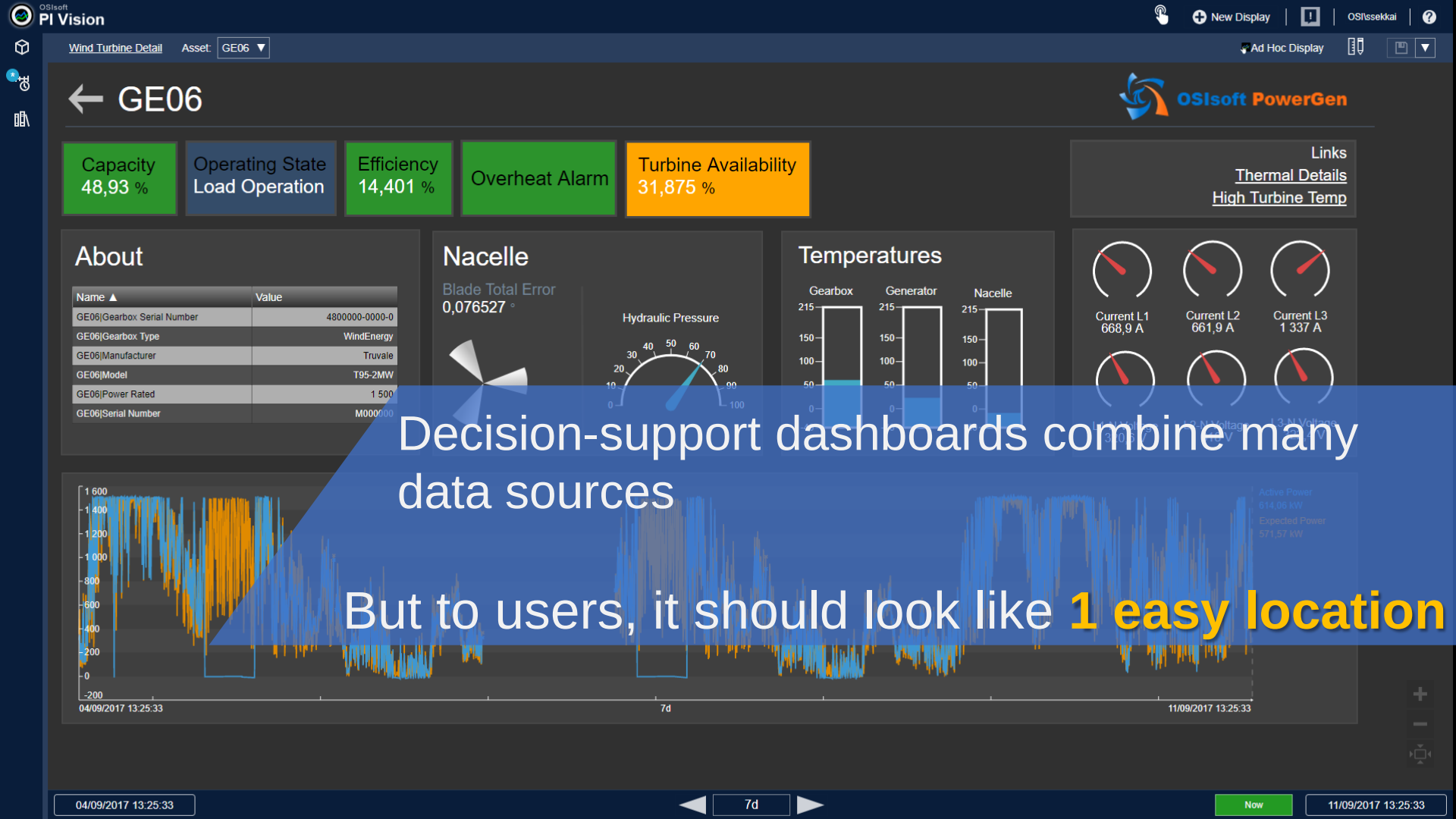
About

Name ▲	Value
GE06 Gearbox Serial Number	4800000-0000-0
GE06 Gearbox Type	WindEnergy
GE06 Manufacturer	Truvalle
GE06 Model	T95-2MW
GE06 Power Rated	1 500
GE06 Serial Number	M000000

Contextual information

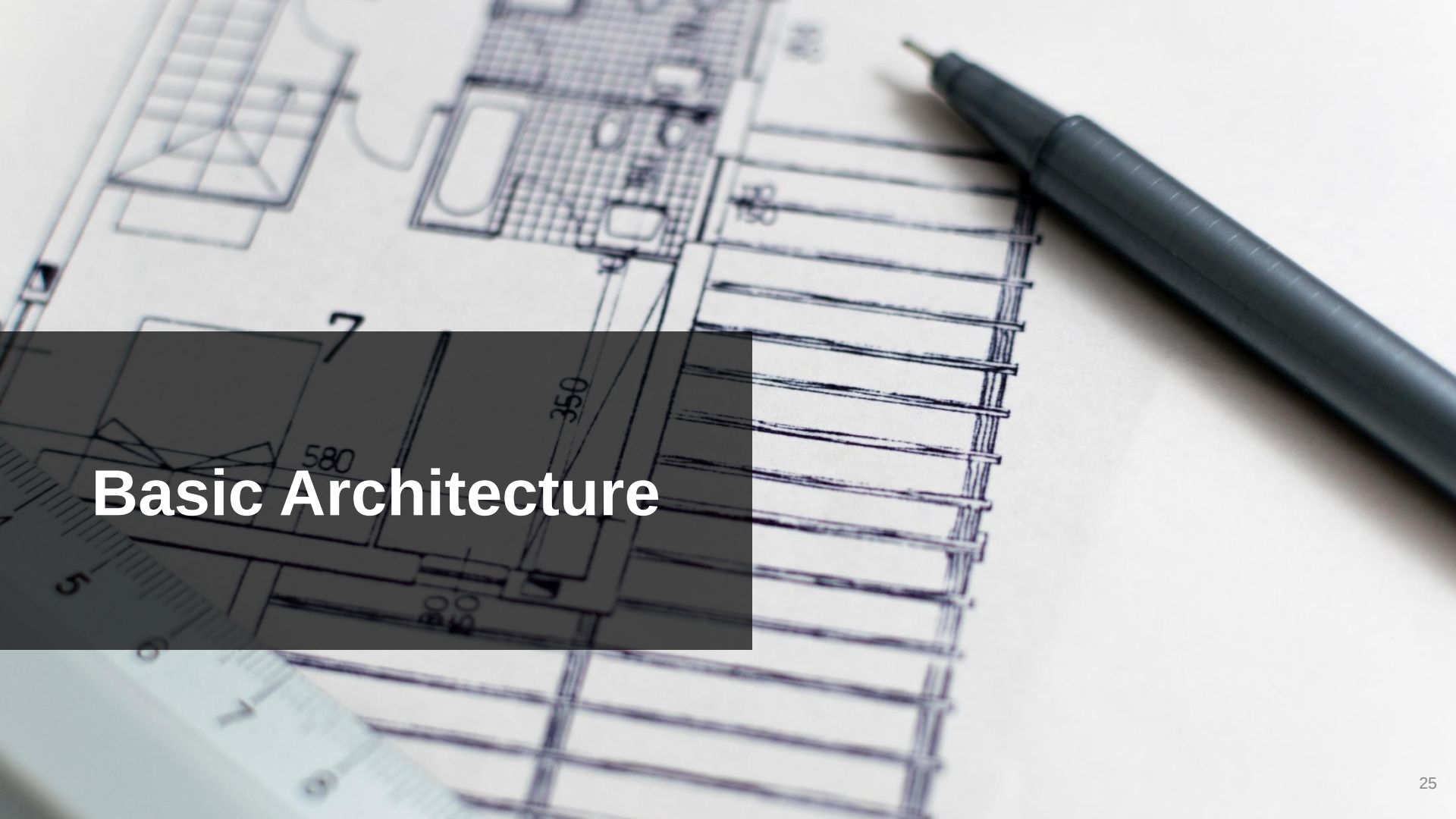
- Manufacturer
- Rating
- Last maintenance date





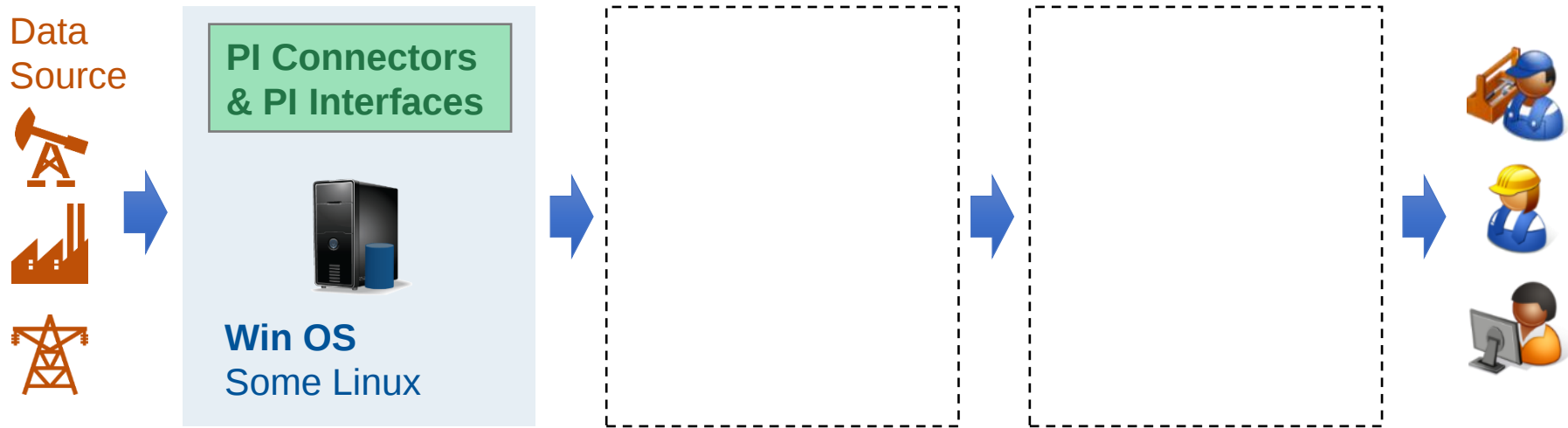
Decision-support dashboards combine many data sources

But to users, it should look like **1 easy location**

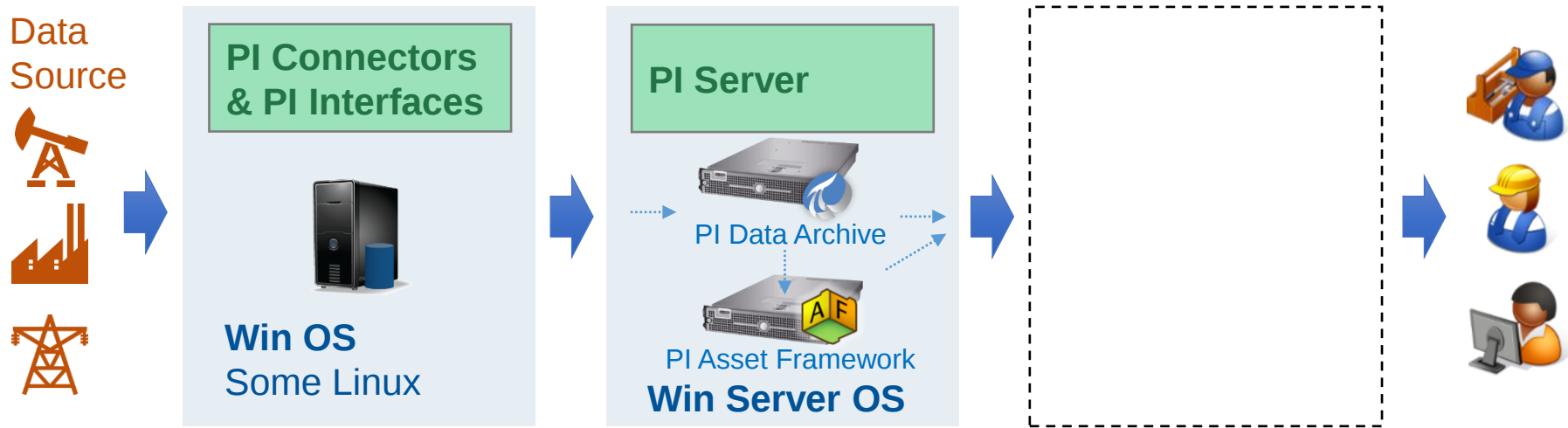
A close-up photograph of an architectural floor plan on a white sheet of paper. The drawing features various rooms, corridors, and structural elements, with dimensions such as 350, 580, 150, and 200 clearly marked. A black pen with a silver tip lies diagonally across the upper right portion of the drawing. In the bottom left corner, a portion of a white ruler with black markings is visible. A semi-transparent dark grey rectangular box is overlaid on the left side of the image, containing the text 'Basic Architecture' in white.

Basic Architecture

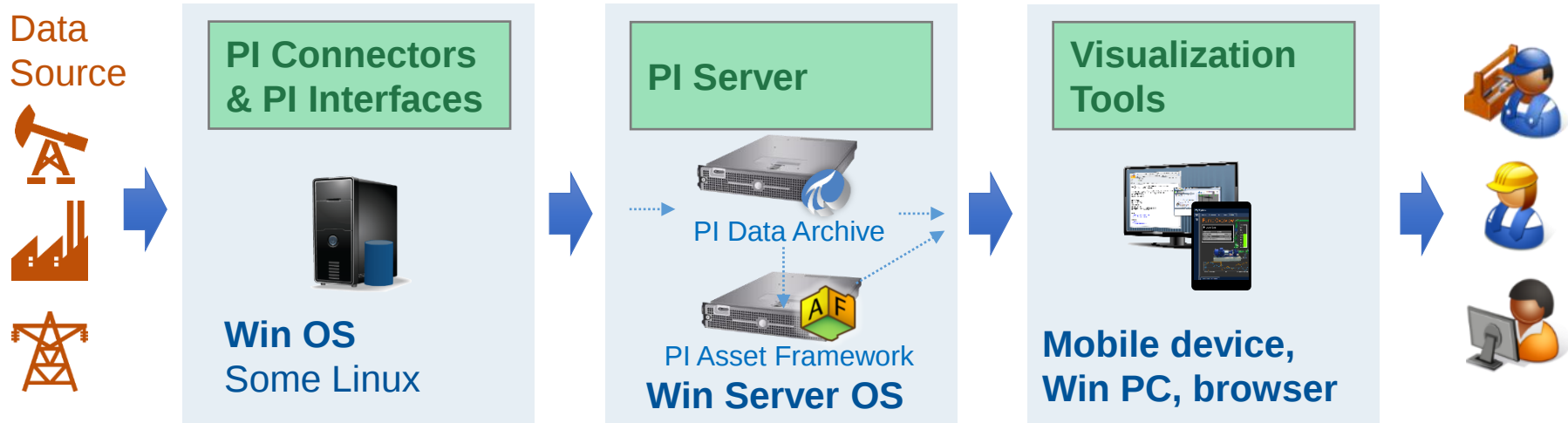
Layer 1: Data collection



Layer 2: Store & Enhance

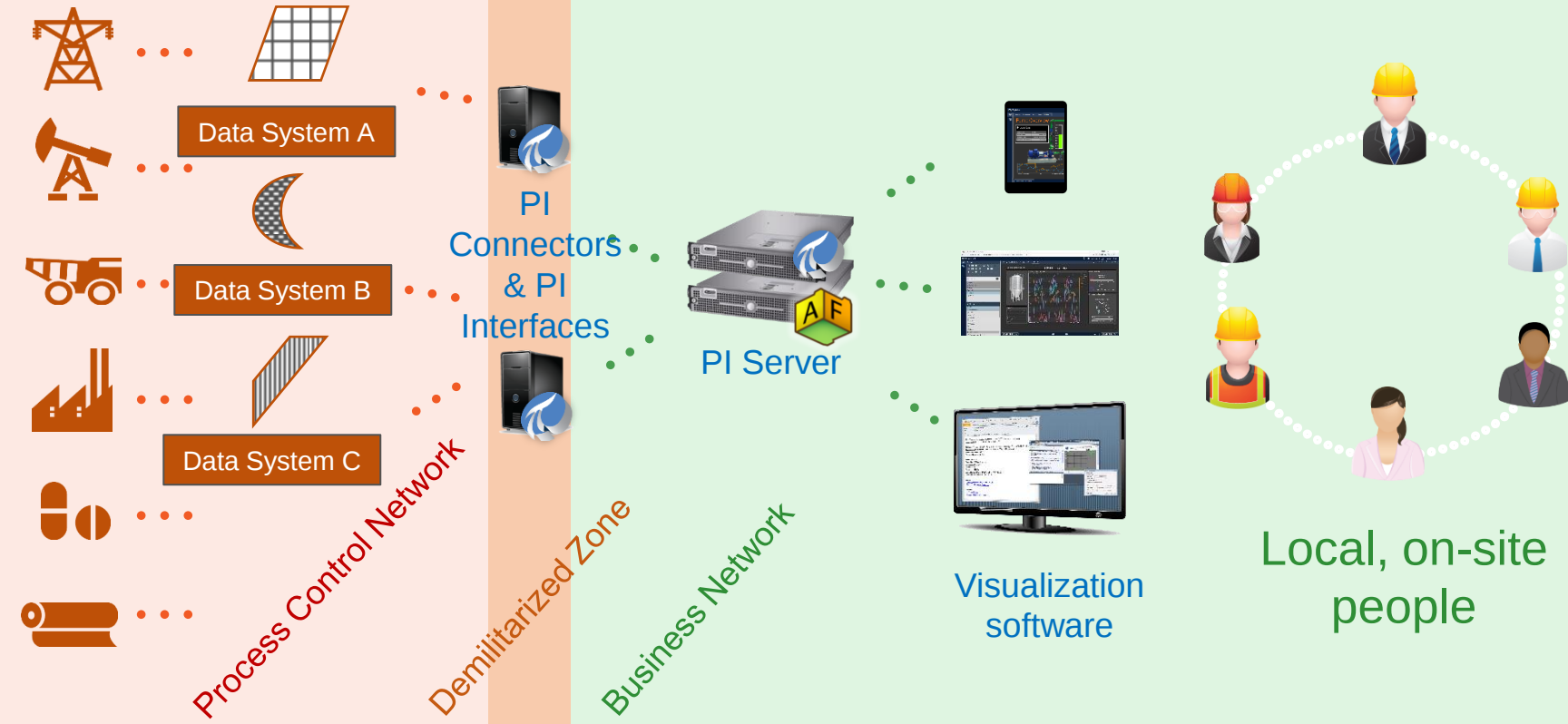


Layer 3: Deliver

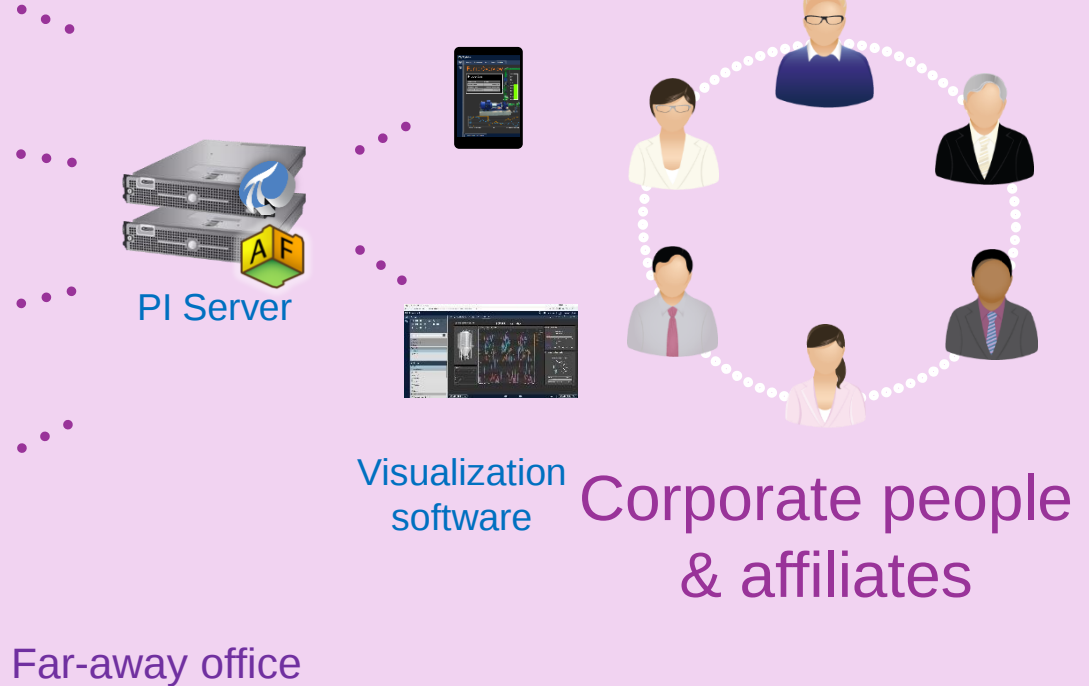
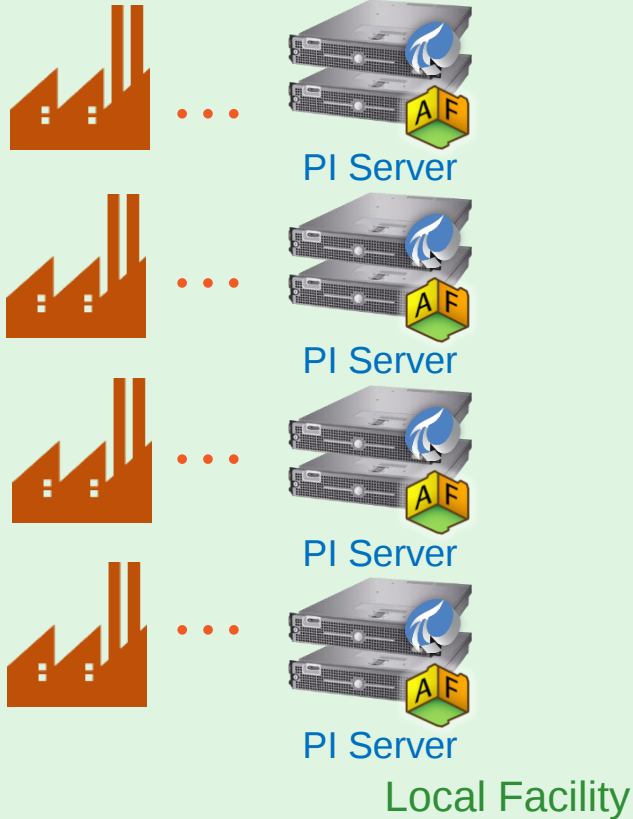


← Typical installation from nothing to seeing data is 3~5 days →

Basic Architecture



Enterprise Architecture



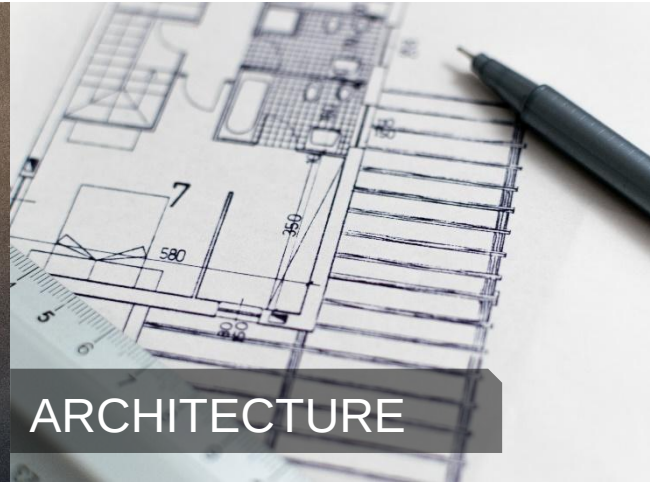
What We Covered



PI SYSTEM



LANDSCAPE



ARCHITECTURE

Digital data **infrastructure** for sensor-based data.

Today's operations blends **multiple types of data**. But to a user, it should be **seamless**.

Fast deployment times to connect single sites or the entire enterprise

Contact Information



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Questions?

Please wait for
the **microphone**

State your
name & company



Please remember

TO DOWNLOAD
APP, SEARCH
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