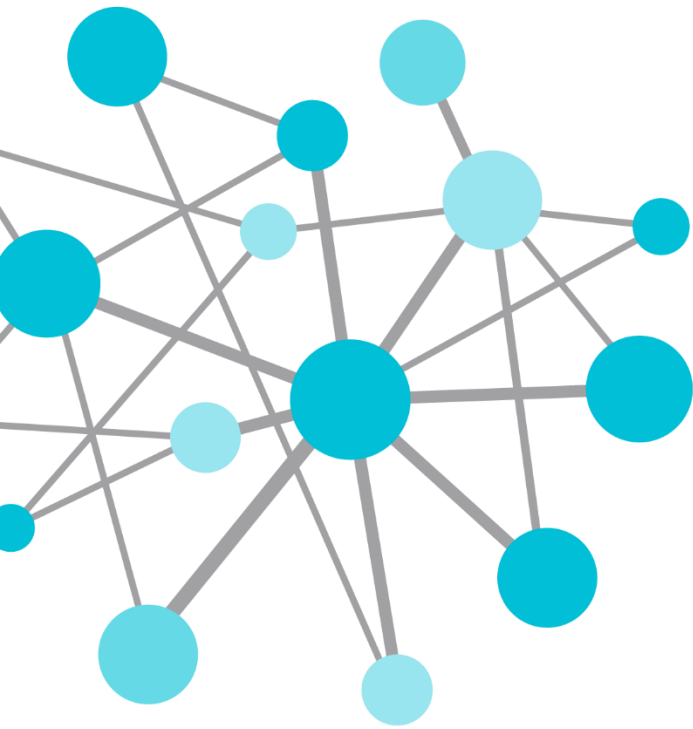
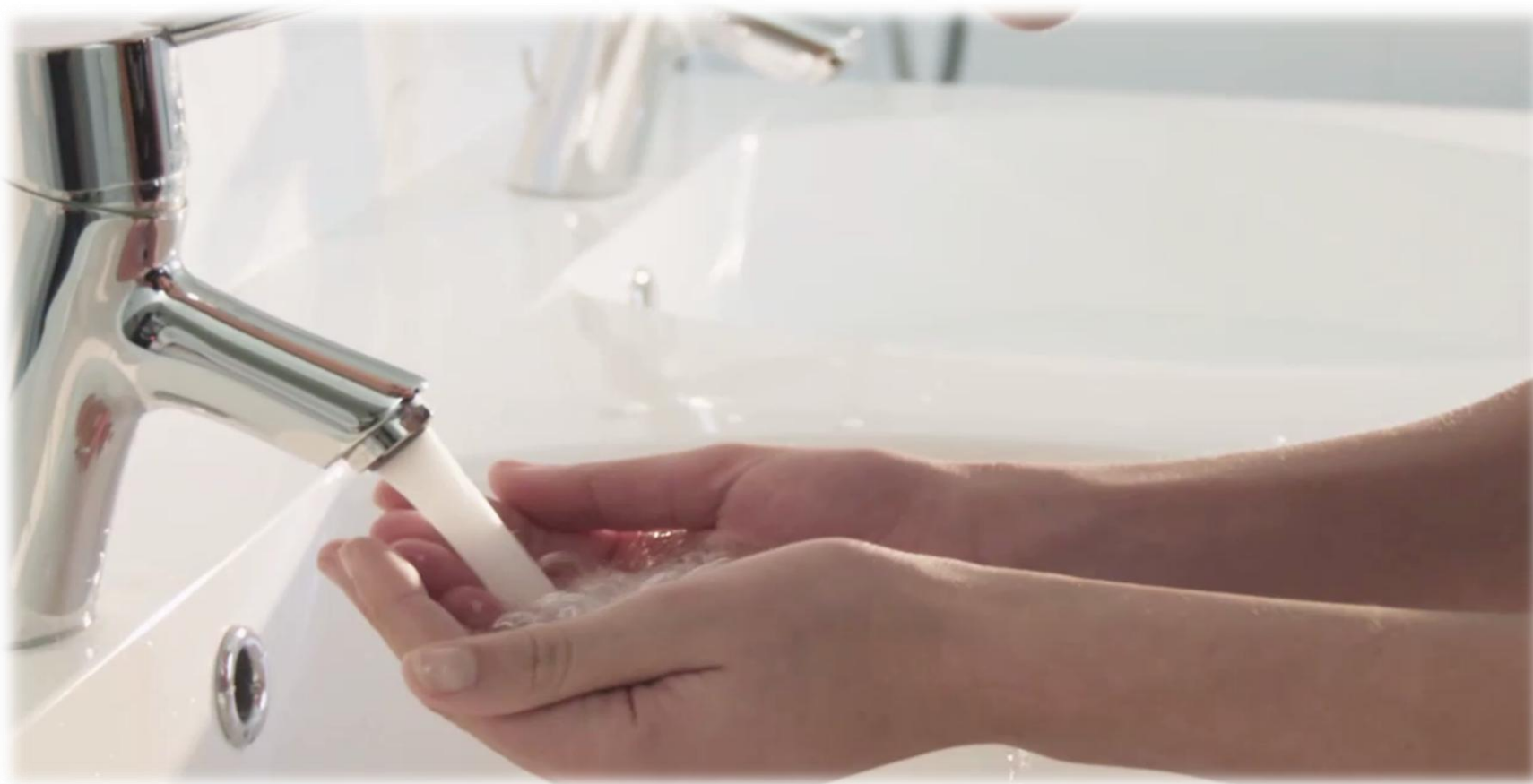




Integrating PI System and Esri ArcGIS to Improve Situational Awareness

Presented by **Jack van Alphen**
Tjidde Boers (magion)





Who are we and what do we do

• Production in m ³ per year	180 million
• Main Supply	23.000 km
• Number of Connections	1,1 million
• Number of Residents	2,5 million
• Number of Water Plants	30
• Turnover per year	€ 200 million
• Number of employees	800

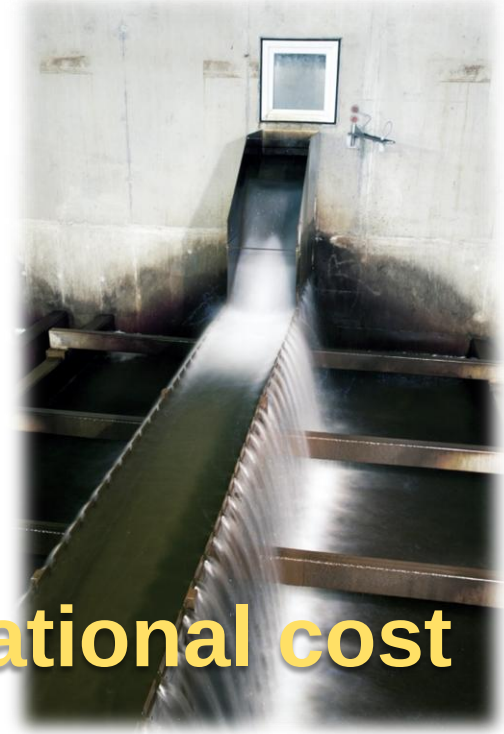
Brabant Water Objectives,

The best water at the lowest cost, this is mostly affected by:

- a) Electricity usage
- b) Purification requirements
- c) Permits



Different kind of purifications



Gravity based with low operational cost



Complex purification plants with higher Opex

Project Objectives

1. Remove silos

Able to share information, one dataset, UoM and nomenclature. One version of the truth

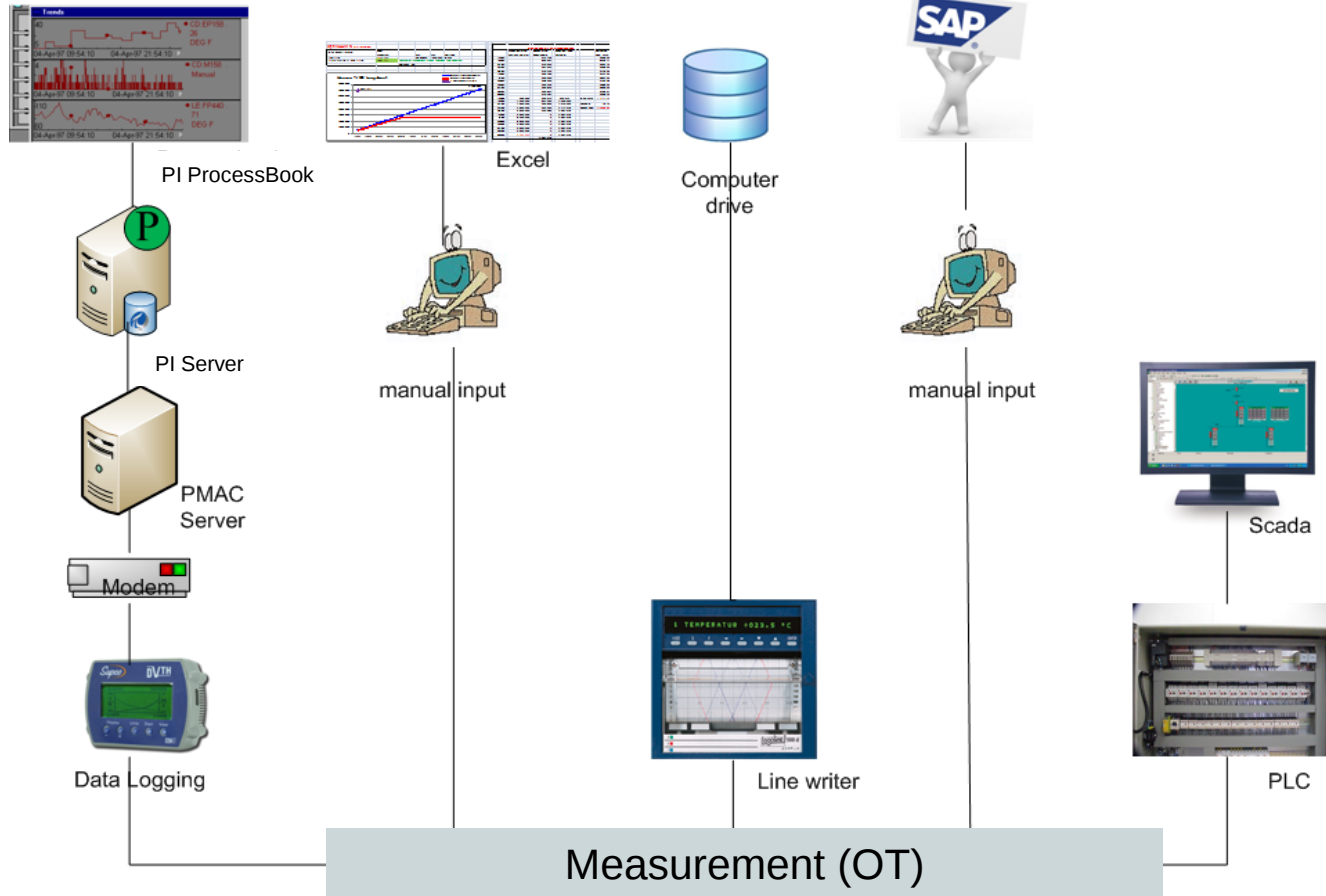
2. Add context to measurements

Measurement by itself is meaningless, to know the actual value of the a measurement one needs context!

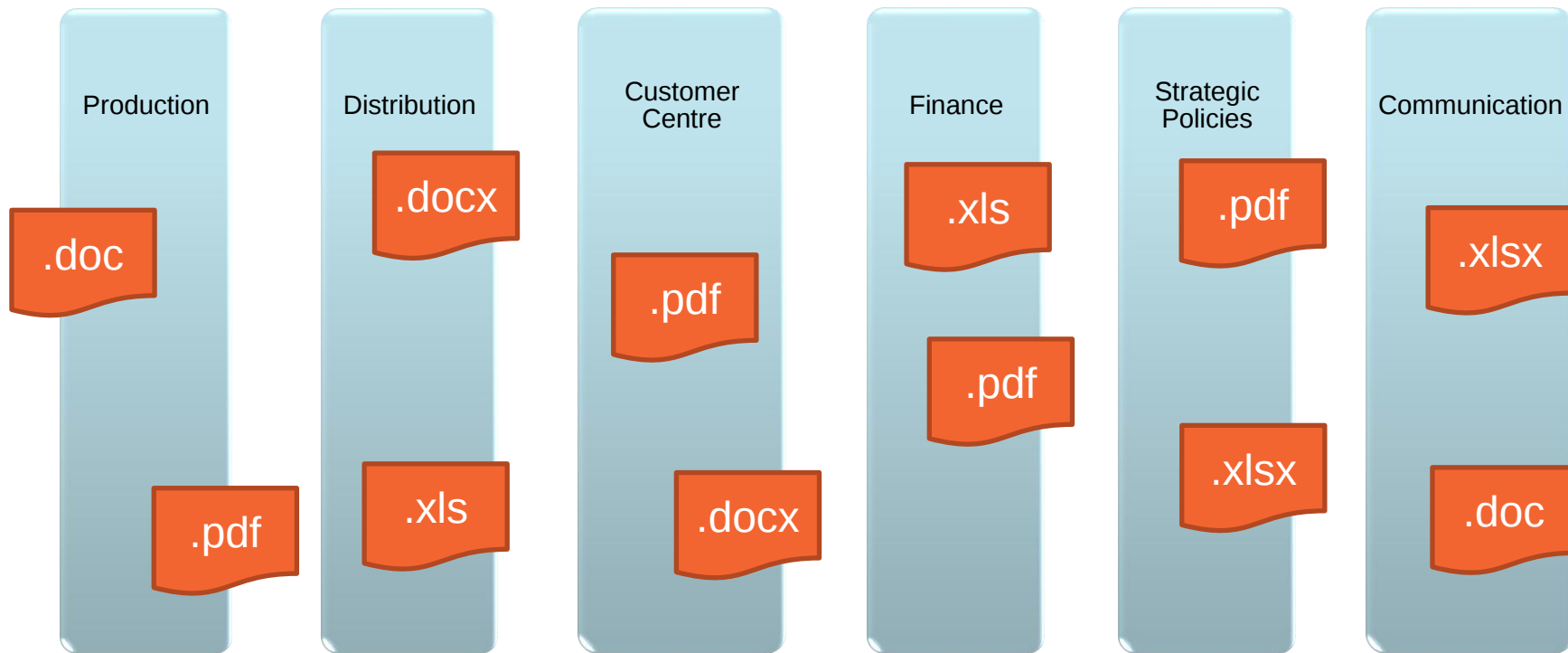
3. Geographical Map as visualization starting point

data should be accessible and understandable for all Brabant Water information workers.



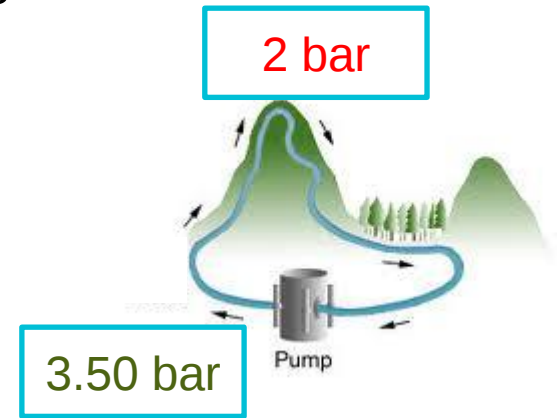


Silos; project start

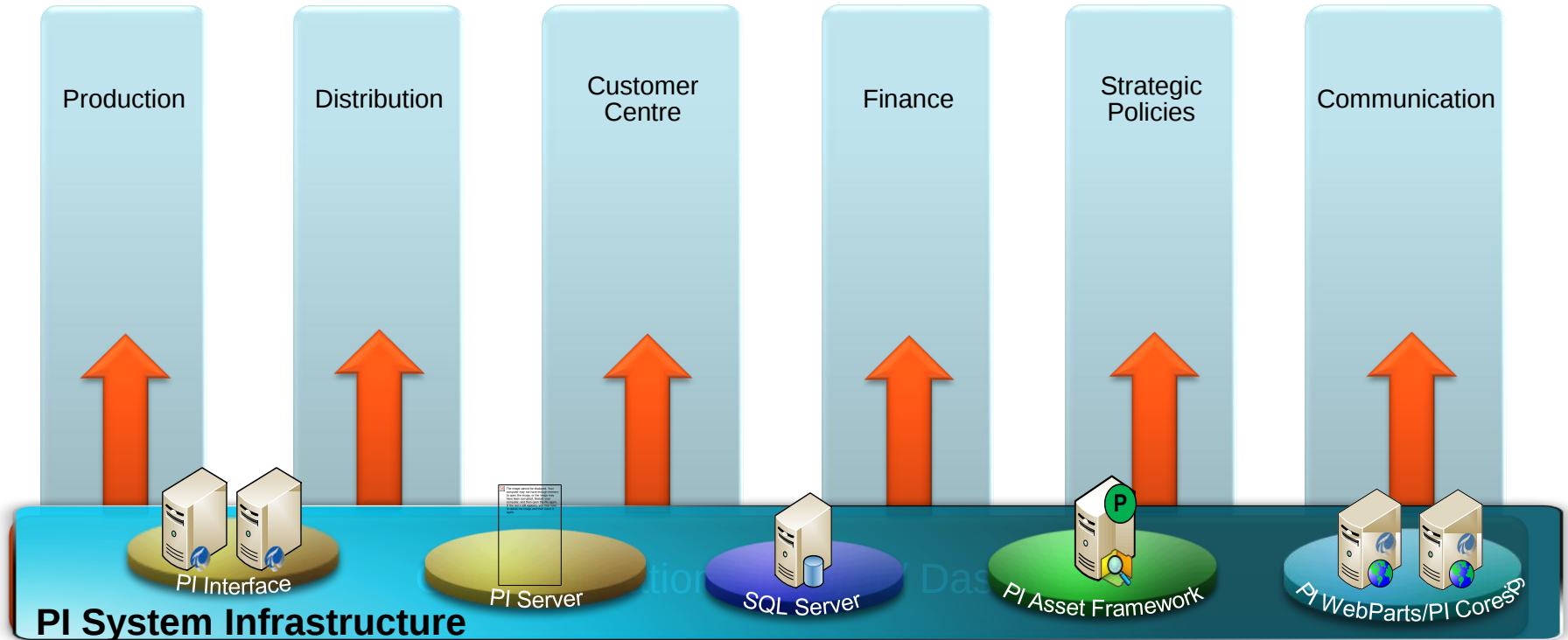


The value of Context

- Measurements will have more value with context
- Example:
 - Pressure measurement 3.50 bar
 - **Context:** above 3 bar is acceptable pressure
 - So should we be happy with this value?
 - Now add some **more context:** the pump station is 5 meter below sea level en the consumers are on a hill located 10 meter above sea level...



Silo's; Target



Tjidde: Can this be made?

- Given our need for removing silos and adding context
- Added our need for an easy to use system
- Given our current infrastructure
- And...we do not accept a custom solution!



How the customer explained it



How the lead understood it

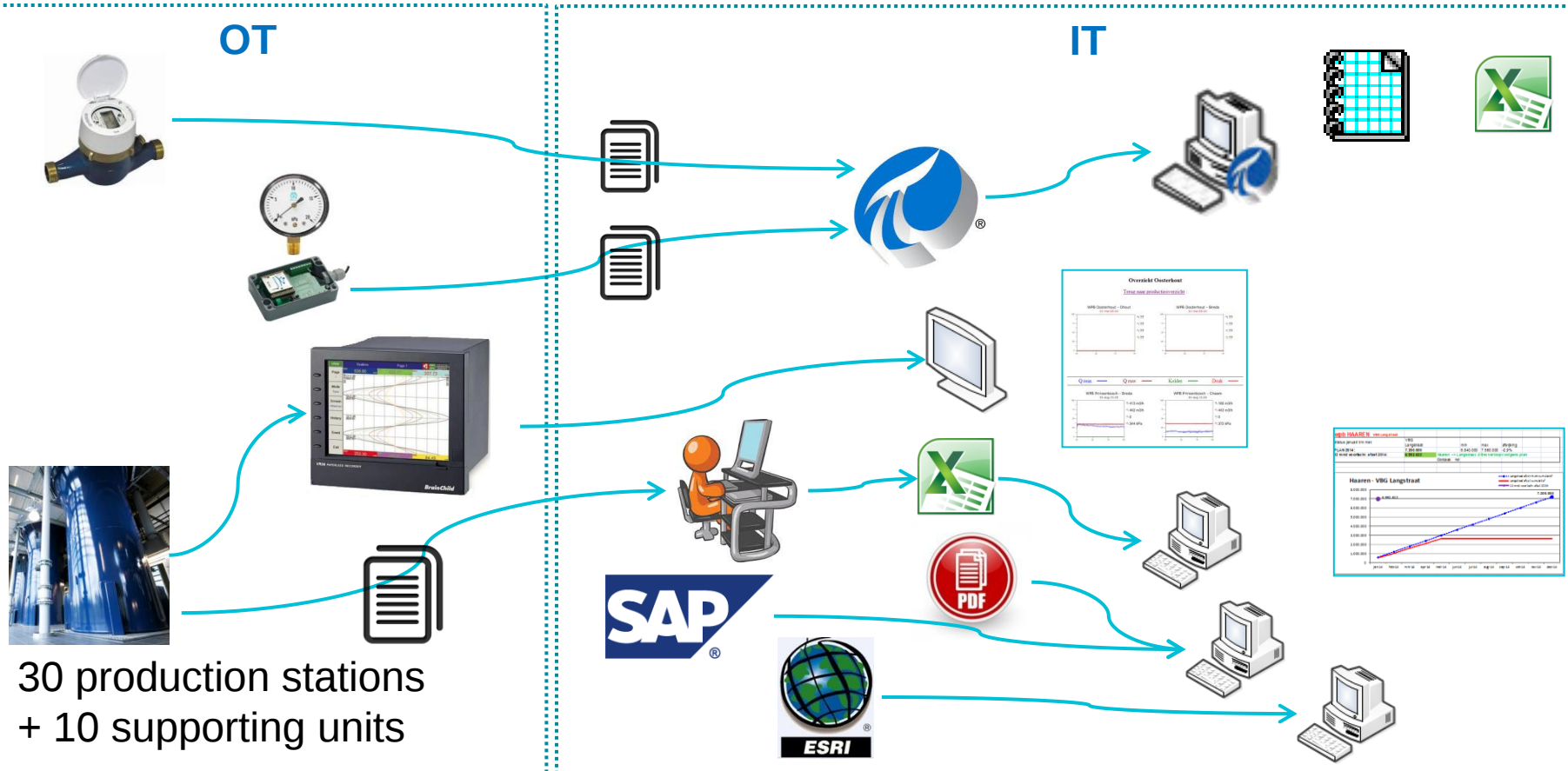


How the programmer wrote it

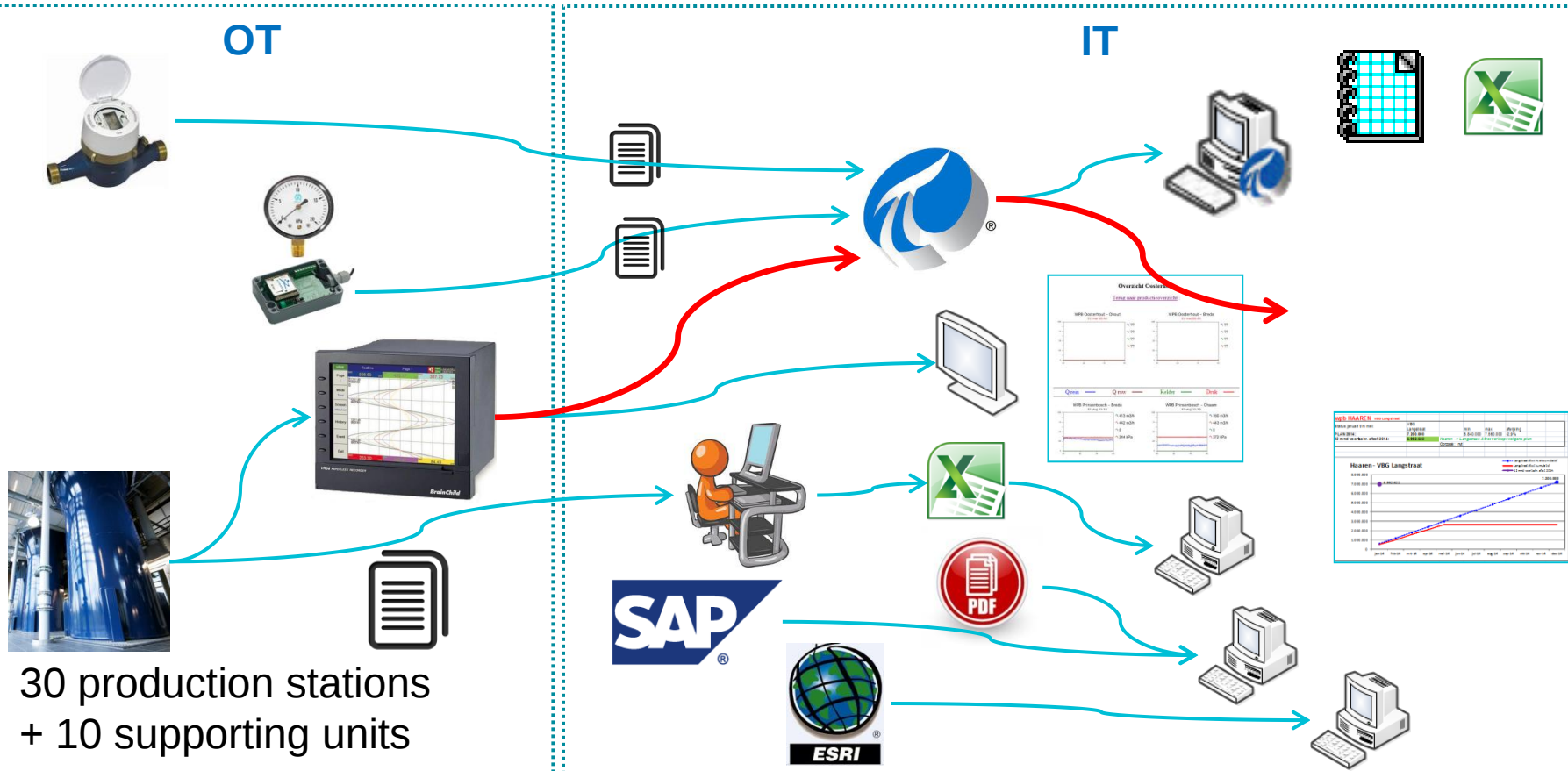


What the customer really wanted

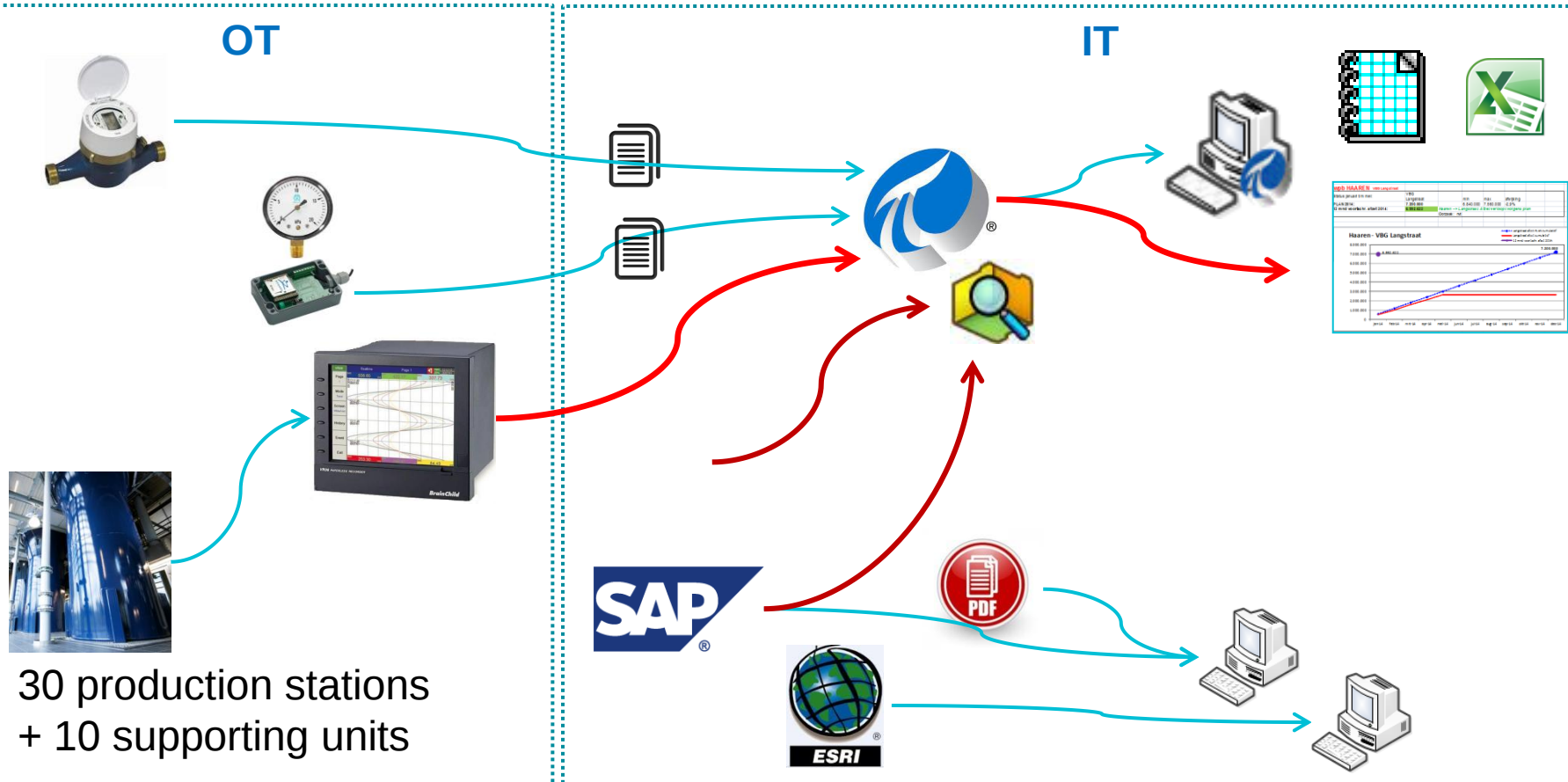
Source architecture



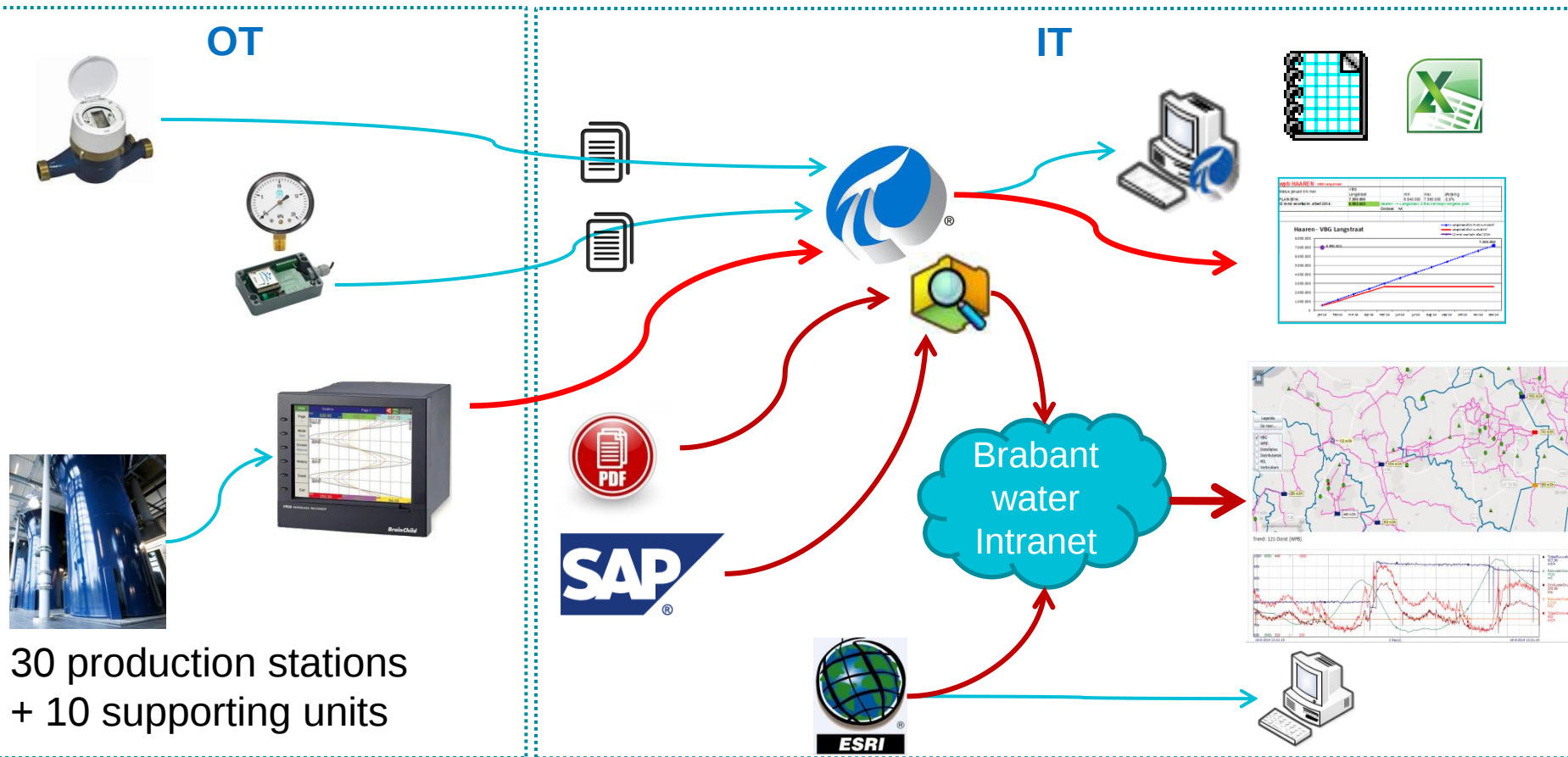
Remove silos



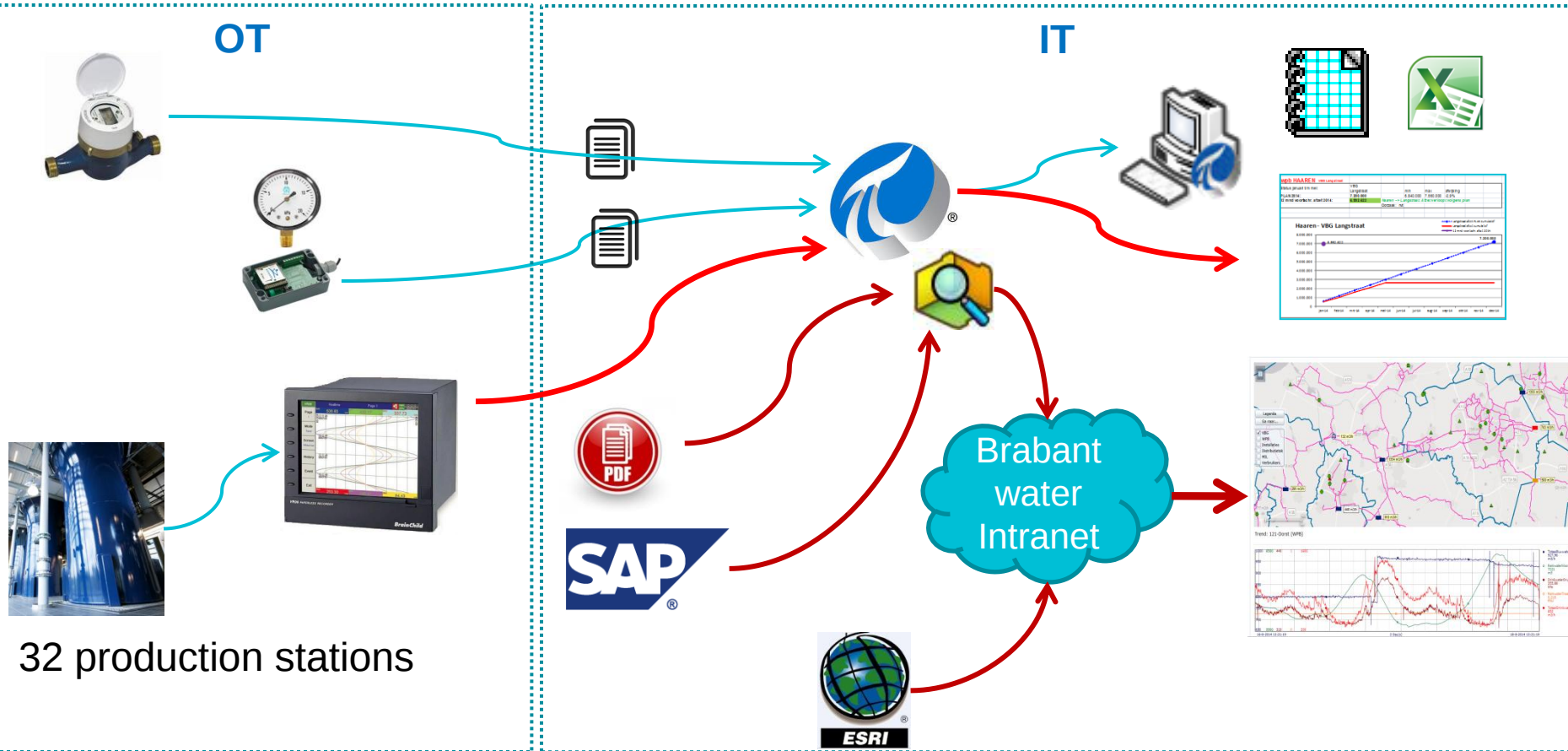
Add context



Make information available on a Map



System based on OSIsoft Infrastructure



The Brabant Water PI AF structure 1/2

The screenshot displays the PI System Explorer (Administrator) interface. The left pane shows a tree view of elements under 'Brabant Water'. The middle pane shows a table of attributes for the 'Breda' element, with 'BWDebiet' selected. The right pane shows the configuration for 'BWDebiet'.

Elements

- Brabant Water
 - Distributie
 - Bergen op Zoom
 - Breda
 - Eindhoven
 - Genderen
 - Haaren
 - Kaatsheuvel
 - Land van Cuijk
 - Oosterhout
 - Oss
 - Peelkant
 - Prinsenbosch
 - Roosendaal
 - Schijndel en Helmond
 - Seppe
 - s-Hertogenbosch
 - Tilburg
 - Vessem
 - Wouw
 - Productie
 - 102-Luyksgestel
 - 103-Oirschot
 - 104-Vessem

Breda

Name	Value
BWDebiet	23888,6191079021 m3/h
GISKey	VBG9
TotaalMaxDrinkwaterDebiet	8130 m3/h
VBGAVerbruik	56,8599988222122 m3/h
VBGDebiet	1437,01818847656 m3/h
VBGDrukStatus	OK
VBGLEidingbreuk	OK
VBGMaxDruk	378,41796875 kPa
VBGMinDruk	346,764343261719 kPa
VBGStatus	OK

BWDebiet Configuration

Name: BWDebiet
Description: Σ DrinkWaterDebiet, Van all Distribut
Configuration Item: ☐
Categories:
Default UOM: cubic meter per hour
Value Type: Double
Value: 23888,6191079021 m3/h
Data Reference: Formula
Settings...
A=\BrabantWater\Distributie\BWDebiet-[A]

The Brabant Water PI AF structure 2/2

The screenshot displays the PI System Explorer (Administrator) interface. The left pane shows a tree view of elements, with 'PrinsenboschBreda' selected. The main pane shows the 'General' tab for this element, displaying a table of attributes and their values. The right pane shows the 'Configuration' tab for the selected element, displaying various settings and a SQL query.

Elements

- 111-Seppe
- 112-Wouw
- 113-Schijf
- 114-Roosendaal
- 115-Bergen op Zoom
- 116-Oosterhout
- 118-Genderen
- 119-Prinsenbosch
 - 1 Wining
 - 2 Zuivering
 - 3 Berging
 - 4 Distributie
 - PrinsenboschBreda
 - PrinsenboschPrinsenbosch
- 121-Dorst
- 122-Vierden

PrinsenboschBreda

General | Child Elements | Attributes | Ports | Version

Filter

Name	Value
ComfortdrukStatus	0
DisplayNaam	PrinsenboschBreda
DistributieStatus	OK
DrinkwaterDebiet	531.8681640625 m3/h
TagNaam	M_119_PLC3_FITS50001_Meetw
HD-PompCapaciteit	1050 m3/h
DrinkwaterDruk	360.195373535156 kPa
TagNaam	M_119_PLC3_PIT50001_Meetw
MeetpuntHoogte	7.67999982833862 m NAP
MaaiveldHoogte	9.14999961853027 m NAP
HD-PompCapaciteitDruk	400 kPa

Group by: ☐ Category ☐ Template

Name: HD-PompCapaciteitDruk

Description: Max. Druk te leveren druk van de re

Configuration Item: ☐

Categories: ShowInPopUpLevel0;ShowInPo

Default UOM: kilopascal

Value Type: Double

Value: 400 kPa

Data Reference: Table Lookup

Settings...

SELECT Avg(DoubleValue) FROM LinkToSapData WHERE AFID = @[GISKey] AND [SAP Kenmerk] = 'P_OPVOERDRUK';UOM=bar

Brabant Water demo

‘Live’ DEMO



Current - Benefits

- Data instantly available, One version of the truth
4500 hrs, freed up for other business processes
 - Higher data quality, Detect problems in the network faster
 - 3000 hrs, not needed for corrections of reports
 - Data infrastructure for future projects
priceless.....😊
- 



Near future PI System projects:

- Add tags 
- Data availability to field mechanics
- Distribution pressure profiles



Contact

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Enterprise Architect, Brabant Water

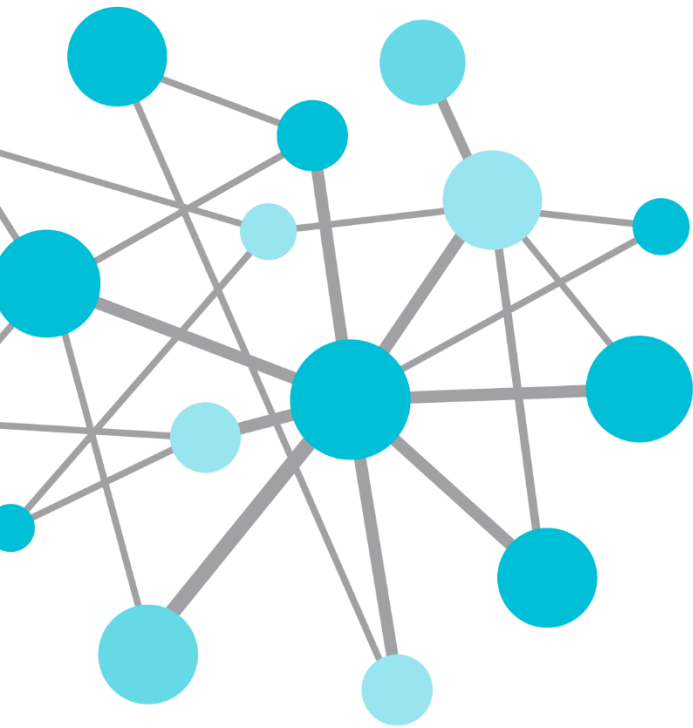
Tjidde Boers

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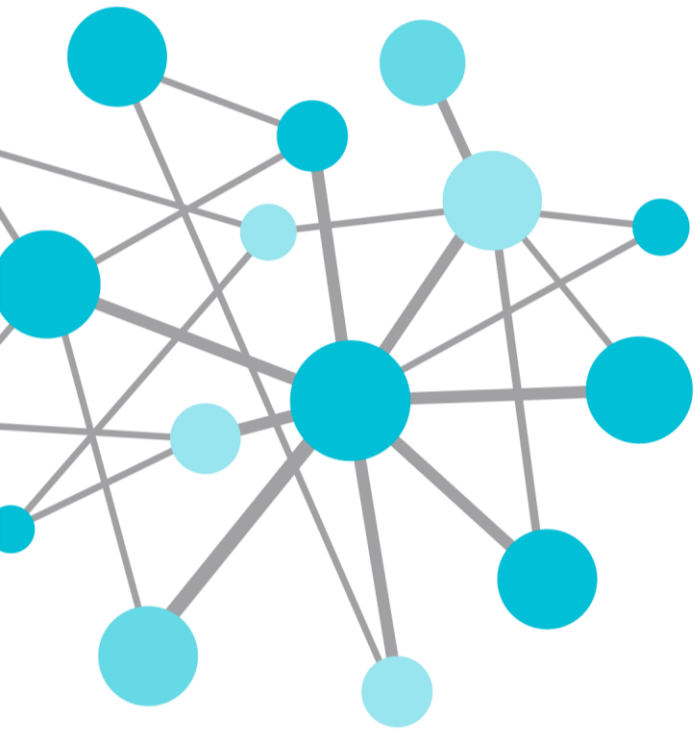


Questions

Please wait for
the **microphone**
before asking
your questions



State your
**name &
company**



THANK
YOU

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