BERLIN · SEPT 26-29 · GERMANY

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Intuitive Interpretation of Big Data Using Esri ArcGIS and the PI System

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Manager Unit Project Management

Agenda

1. Introduction Evides Waterbedrijf

2. Appeal to the visual disposition of the human species

3. How we organized a software based research project

4. Spin-off and lessons learned

Evides Waterbedrijf in a nutshell

- **Drinking** water (NL)
  - 160 mio m^3/y
- **Industrial** water
  - also international (NL, BE, GE)
  - process water (144 mio m^3/y)
    - demineralized water (40 mio m^3/y)
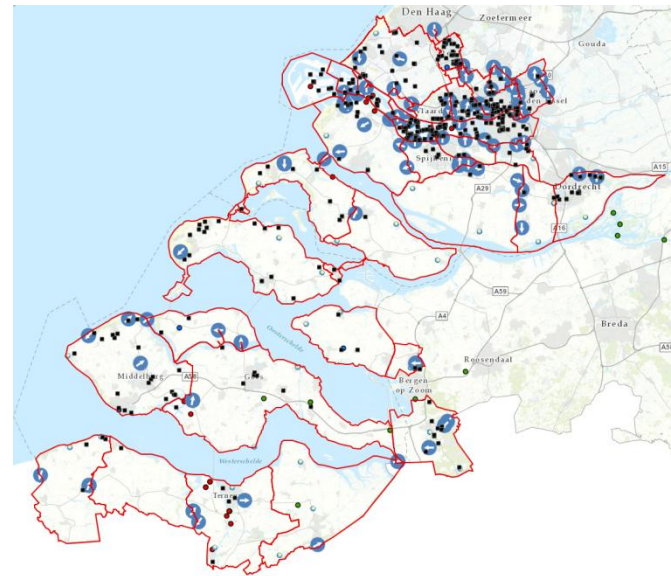 - waste water treatment (100 mio m^3/y)

Evides Waterbedrijf in a nutshell *cont'd*

- 14,000 km drinking water mains
- 80+ production plants and booster stations
- 1 mio customers / 2,5 mio people
- 600 large customers (>10,000 m^3/y)
- Turnover 300 mio €/y
- 700 employees

PI System history

- PI System user since 2007
  - ✓ PI Server
  - ✓ PI ProcessBook
  - ✓ PI DataLink
  - ✓ PI WebParts
  - ✓ PI Coresight
  - ✓ PI Integrator for Esri ArcGIS
- 100 flow and pressure sensors in drinking water mains
  - ✓ 10s values, on-line
- 600 data loggers @ large B2B customers
  - ✓ 15min values, daily
- 100,000 PI Server tags

Reason – problem to solve

- We want, and should, do more with Esri ArcGIS
  - but what?

- Many large databases, -lakes, -vaults, -warehouses, …
  - we collect much, use little
  - not easily accessible
  - possible hidden treasures
  - external services

Timeline

- OSIsoft EMEA UC 2014 Lisbon
  - dynamic DMA - visualisation Brabant Water
  - PI Integrator for Esri ArcGIS

- Research program H2020
  - humans are mostly visually orientated
  - GAMEs Playground
    - ✓ Geographic Asset Management @ Evides

GAMEs Playground

- **System setup**
  - don't interfere with other important ICT-projects
  - circumvent strict ICT-procedures
  - separate ArcGIS server
  - new PI Integrator for Esri ArcGIS
  - PI System production environment

- **Formal *go* May 2015**
- **Planning**
  - duration of 3 years
  - 4 new functionalities per year
- **First functionality live June 2015**

Current state

- 1 year running

- 50 (!) functionalities developed

- Primarily used to improve "Situational Awareness"

National address database | Fire brigade | Soil pollution
Large customers | Vulnerable customers | DMA boundaries
DMA sensors | ZIP codes | Production plants | Booster stations
Projects in progress | Water boards | Large water meters
Parcels we own | Valves | Trees | Municipal boundaries | Number of
inhabitants | Special hydrants | Pipes | Pipe functions | Risk chart
Permits | Rights of superficies | Flooding depths | Travelling time

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Note

- Video replay has been removed to keep download size down. See the video on the replay for this conference session at osisoft.com > About OSIsoft > Presentations.

Big data

- TaKaDu
    - SaaS
    - batch processing
    - fed by flow and pressure data from PI System
    - every hour 5 min data
    - sends us anomalies/events

Near future

- "**Serious GAMEs**" = production version
  - 20 mature functionalities
- Control Center more effective and efficient
- Expect a decrease in Customer Minutes Lost

National address database | Large customers
Vulnerable customers | DMA boundaries | DMA sensors
Production plants | Booster stations | Actual flow and pressure
Water boards | Valves | Municipal boundaries | Special hydrants
Pipes | Pipe functions | Travelling time | Customer reports

GAMEs Spin-off for …

- Bad data quality becomes visible, and gets attention
- "Orphaned" data sets now have owners and managers
- User's curiosity and enthusiasm is aroused
  - from push to pull

Lessons learned

- Not rocket science
- Separate ICT environment, a playground, works
- Operational Awareness is increased
- Combines ICT smart generation with older experienced employees
- Useful addition to Big Data (TaKaDu for event detection)
- Let's use this approach more often

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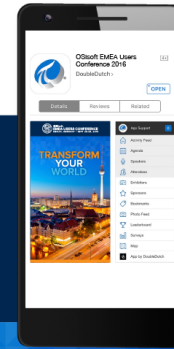
Evides Waterbedrijf

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谢谢

Danke

Gracias

Merci

Thank You

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Спасибо

Obrigado

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