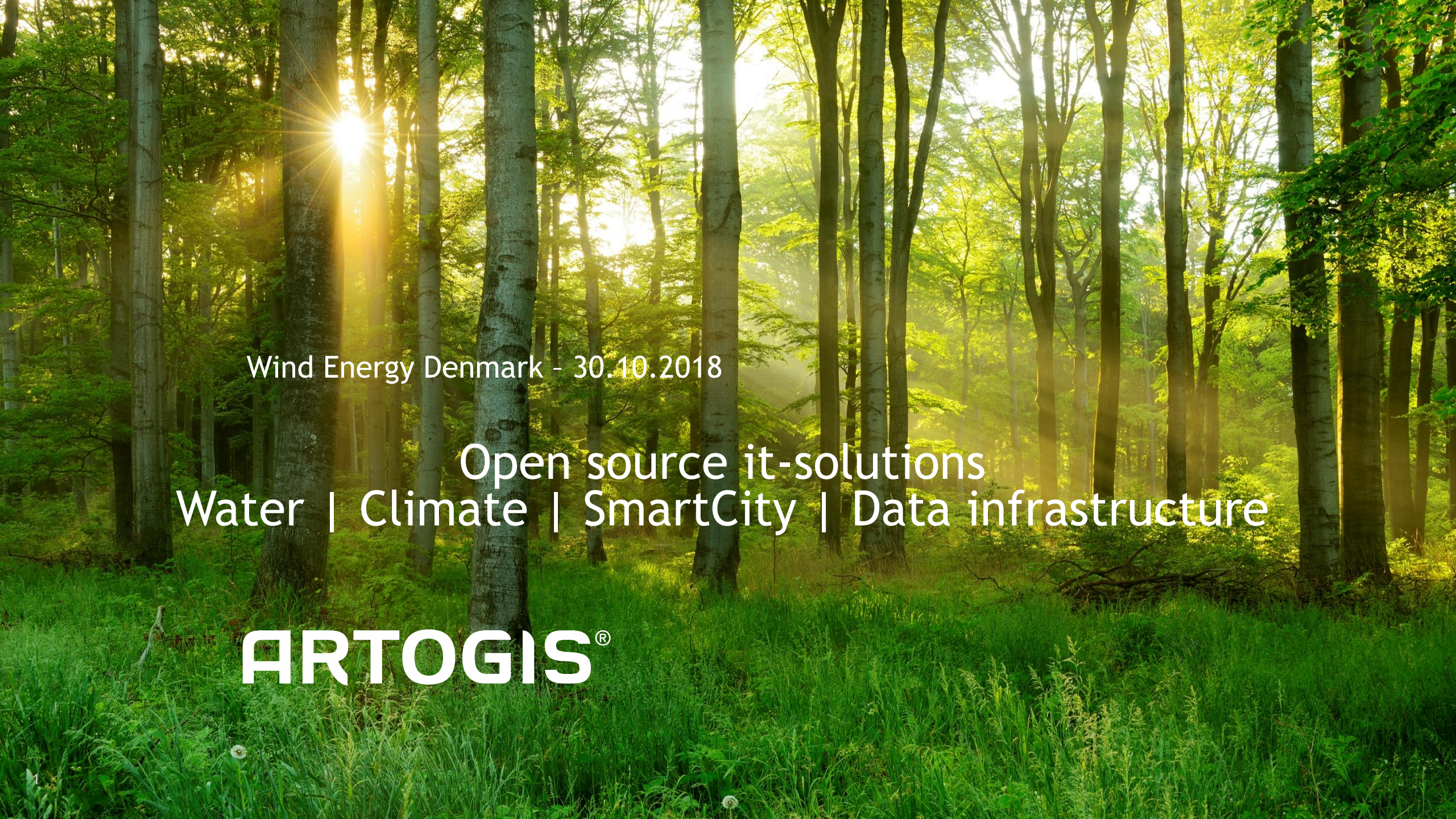
Wind Energy Denmark – 30.10.2018
Open source it-solutions
Water | Climate | SmartCity | Data infrastructure
ARTOGIS®

Agenda

- ARTOGIS
- Our business model
- Our data platform
- Open source
- New business models
- My questions

ARTOGIS®



About us

- Etablished in 2001
- Home in Kolding
- 10 employees in Denmark
- Up to 6 employees at development partner
- Strategic focus on water, heat and energy companies as well as municipalities and traffic
- Technology base in global open source

”

Known for honesty
– we keep our promises!

Innovation · Quality · Freedom

ARTOGIS®

Our Vision

> Global open source innovator
> – to the benefit of water and climate

Sources of inspiration and drive

- United Nations Sustainable Development Goals

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A customer-friendly, share-economic business model

Efficient Co-Creation

- Focus on datadriven value creation
- Close interaction with established it-systems
- Curious about the expertise of others
- Free sharing of knowledge, data and solutions

Free & open platform

- Globally widely used open source technologies
- Free basic-software
- Cost-effective system integration
- Agile-built solutions
- Free and open source, incl. algorithms

Our business

- Development- and innovation projects
- Implementation of platform and solutions
- Software maintenance subscriptions
- Hosting
- Consultancy

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Data-silos in a complex system landscape

- Data are often sealed in closed systems – ”historically conditioned”
- Data access costs are expensive and demands supplier assistance
- Lack of central place for collection, storage, utilization and exhibition of data

Challenges we often meet with our customers….

IoT-Data capture from remote locations

- Areas with insufficient GSM coverage
- Measurement points that are expensive to establish, drive and maintain
- Special challenges in the rivers, lakes and fjords – and other remote locations as deserts, off shore

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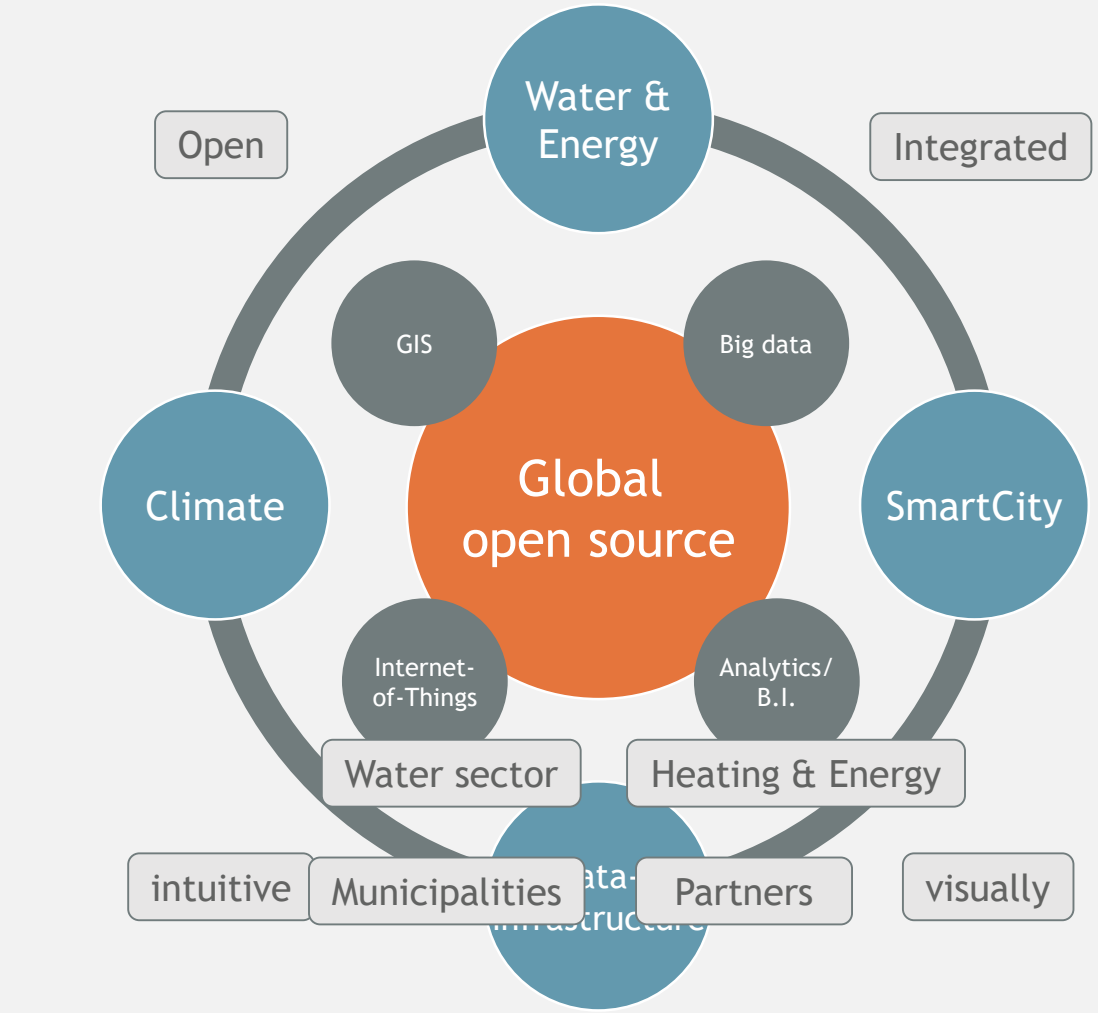
Strategic focus on

- 4 segments
- 4 solution fields
- 4 technology fields
- 4 product characteristics

Perspective

- Target: sago•fonto® GIS released as open source (free source code) by 2020
- Investments of 20-23 million kr. are invested in platform development between 2016-2020



Water sector | Heating & Energy | Municipalities | Partnere

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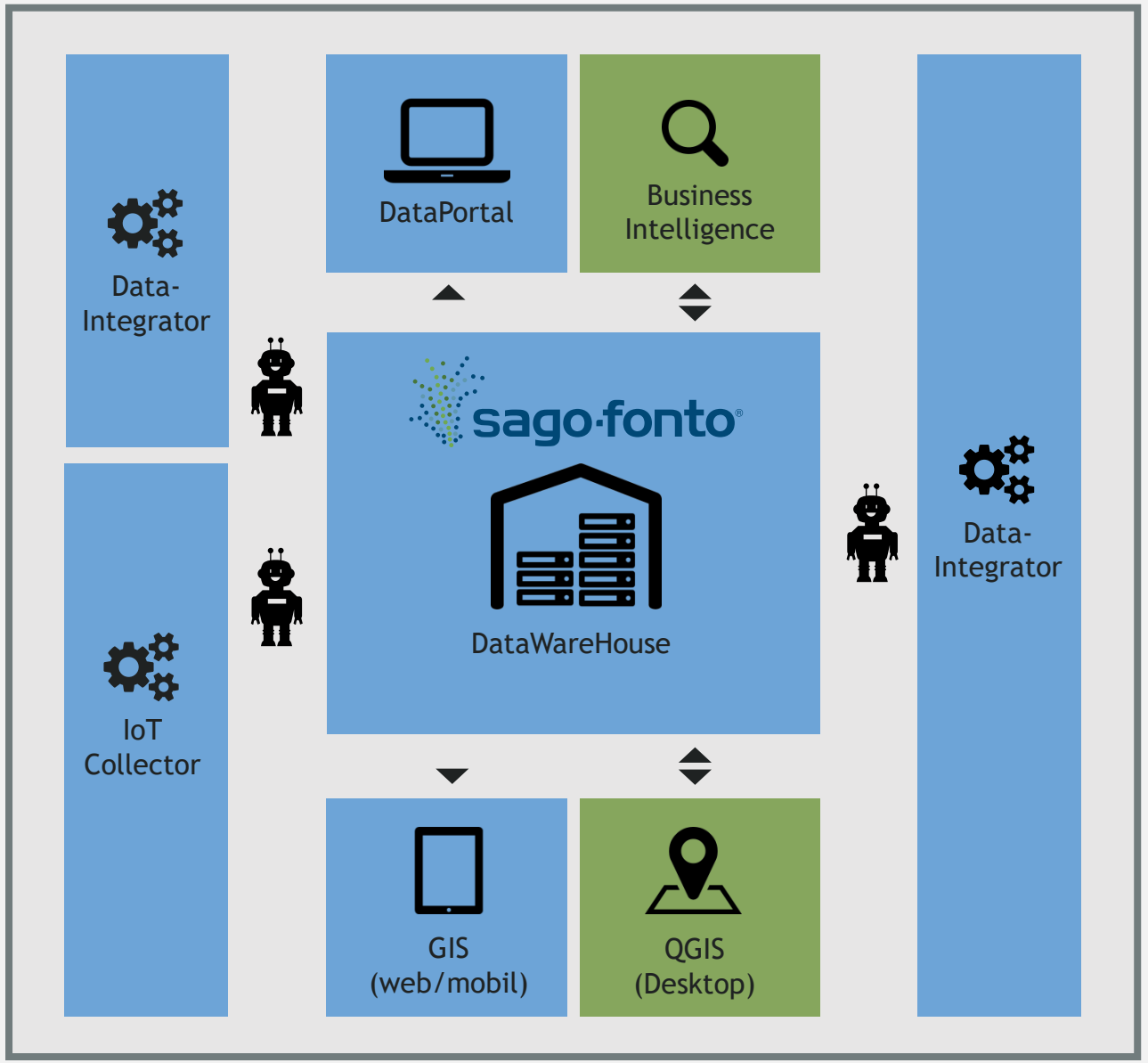
Open data platform in a flexible integrated system landscape

IT core systems
- Economic system
- Plant specific data
- Operation & Maintenance
- GIS/Webgis
- etc.

Internet-of-Things

Datarobots
Portals og Factory



Grunddata
Arealinfo
Jupiter
OIS
DataHub
DMI

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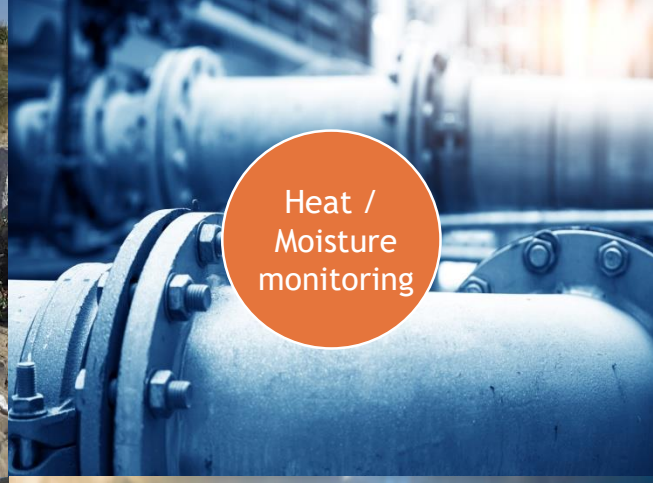

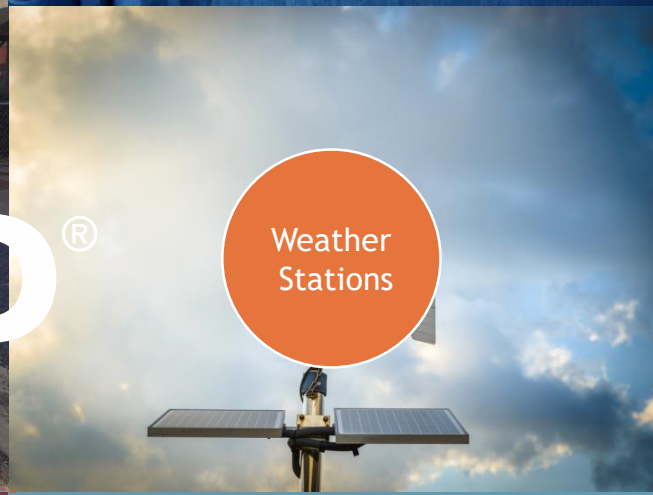

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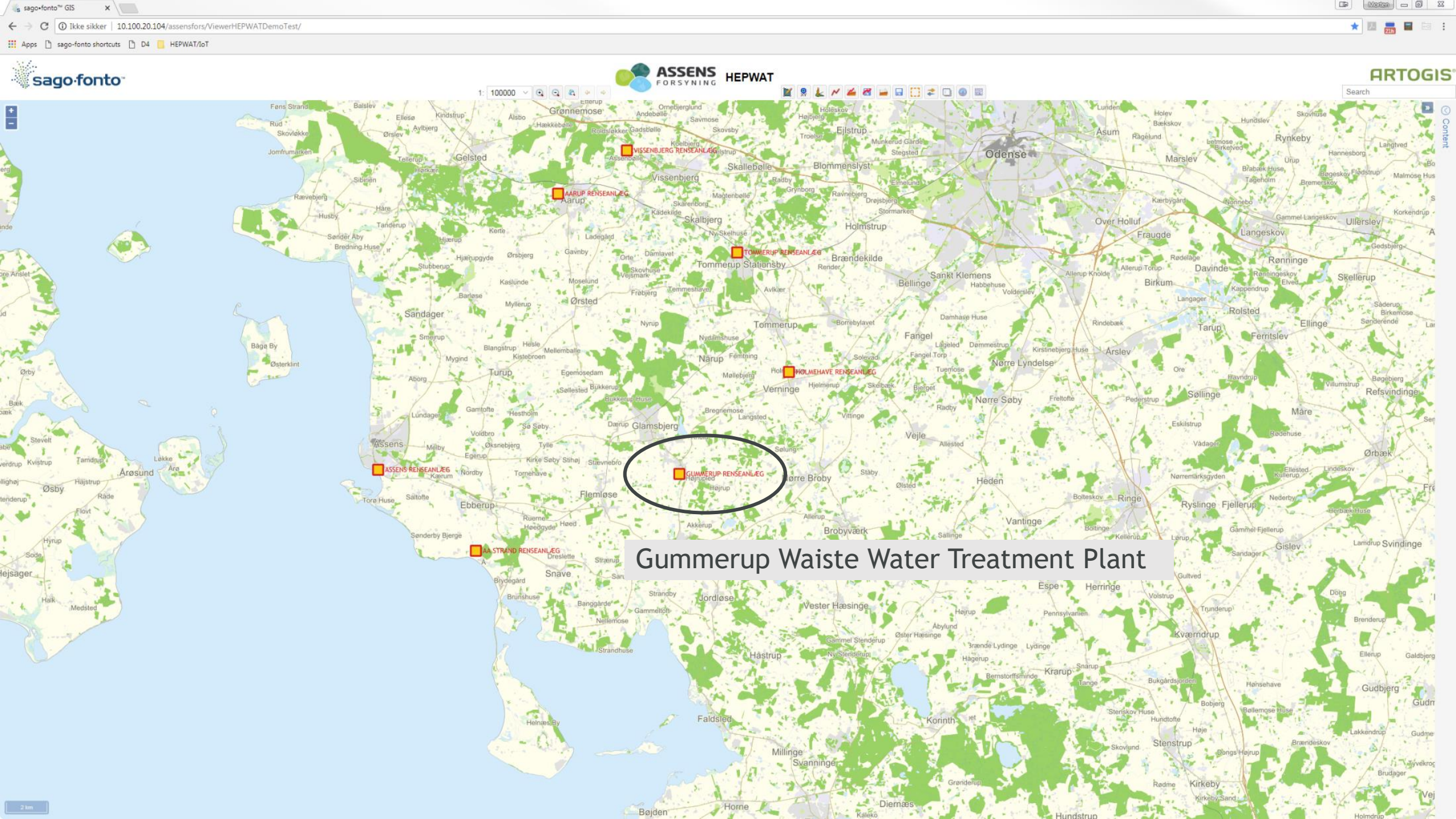
One platform for all data sources

One full overview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Apps
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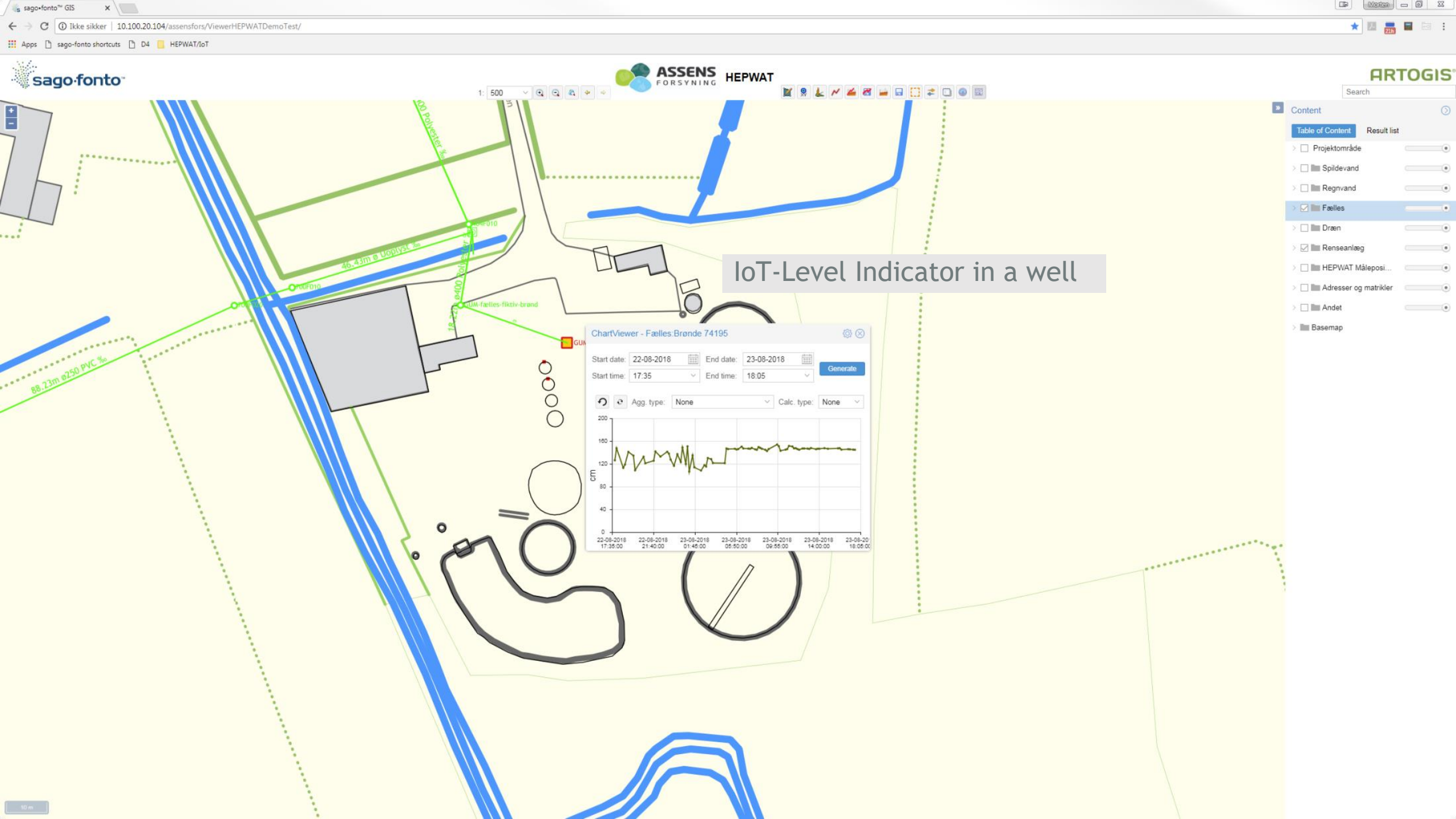
ARTOGIS
Search
Content
VISSENBJERG RENSEANLÆG
AARUP RENSEANLÆG
TOMMERUP RENSEANLÆG
HOLMEHAVE RENSEANLÆG
ASSENS RENSEANLÆG
GUMMERUP RENSEANLÆG
AA STRAND RENSEANLÆG
Gummerup Waiste Water Treatment Plant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Apps
sago-fonto shortcuts
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Table of Content
Result list
Projektområde
Spildevand
Regnvand
Fælles
Dræn
Renseanlæg
HEPWAT Måleposi...
Adresser og matrikler
Andet
Basemap
IoT-Level Indicator in a well
ChartViewer - Fælles:Brønde 74195
Start date: 22-08-2018
End date: 23-08-2018
Start time: 17:35
End time: 18:05
Generate
Agg. type: None
Calc. type: None
cm
200
160
120
80
40
0
22-08-2018 17:35:00
22-08-2018 21:40:00
23-08-2018 01:45:00
23-08-2018 05:50:00
23-08-2018 09:55:00
23-08-2018 14:00:00
46.43m ø Ukendt
88.23m ø250 PVC

IoT-Level Indicator and Rain Gauge

Ultrasonic level indicator

Rain gauge

Level meassurement inside a well

Rain gauge free mounted

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Data-driven overview in a "Command Center"

Online measurements pave the way

- Overview the consequences of ex. “Cloudburst”
- Near-Real-Time Data set alarm levels for flodding
- Automatic Citizen SMS-Warning from the system
- Geographical Overview during crisis management
- Action is taken on the strongest computerized basis

The IoT-equipment and network behind

- Levels / Precursors / etc.
- Sensors / Cameras – Narrow-Band or GSM network (99.7% geographic coverage in DK)

IoTDenmark

sigfox

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Business potential in open source

Economically attractive

- Licenses and maintenance on basic software are free
- Free scalability
- Stronger competition exposure with lower supplier commitment
- Commerciality is minimized

Free and open technology

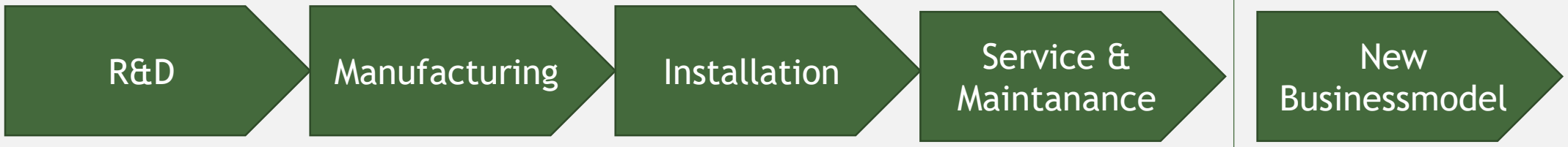
- All contribute to continued maintenance and development
- Several actors
  => Wider wealth of ideas
  => More innovation
- Effective system and data integration
- Greater agility in development

Enhanced data migration

- Disables data silos
  => improved access
  => increased mobility
  => greater utilization
- High migration across businesses, countries and continents
- Strengthened export potential for IT platform and associated solutions

Value Chain – Wind Energy

Hardware



Shared revenue?
New revenue ?
(weather data)

Software & Data

Big Data Pool

- MS / AWS / IBM
- Or Open Source (ARTOGIS)

Non – Competitive Value (Required Activity)

Competitive advantage

- Closed Source
- Cost reduction
- Innovation

Competitive edge driver

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My questions - Utilizing and industrializing big data

New business models

- New revenue possible?
- Shared revenue possible?
  - Windmill owners
  - Data capture / warehousing
  - Big Data analyst
  - Sub-supplier
- Technical opportunity with blockchain?

Commercial Data

- Can you define the commercial data?
- Who has ownership?
- Who should profit?

Research Data

- Who has ownership?
- Who gets access?
- Who will benefit?


Thank you !