

# Asset Maintenance@ FARYS



**FaRYYS**

TMVW

intercommunale cvba



# Introduction

# Who is FARYS|TMVW?



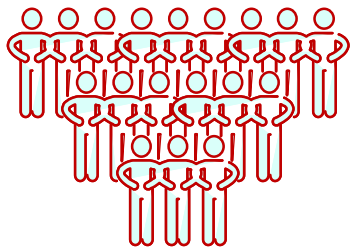
## About FARYS/TMVW



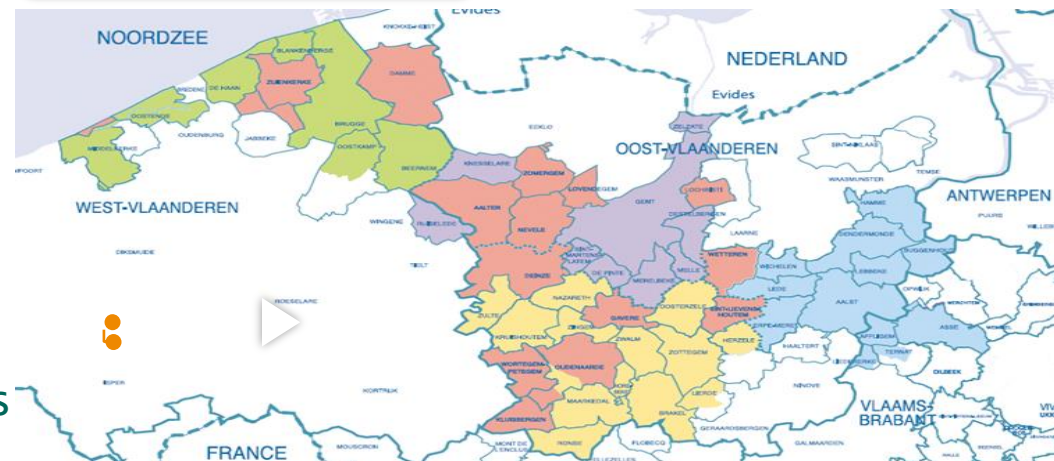
FARYS delivers products and services to about **650 000 customers** in **Flanders**

- 11 000 km of network
- 84 Mm<sup>3</sup> delivered
- 383 M€ revenue (↑ 4,5%)
- 97 M€ EBITDA

## Area



Headquarters are located in **Ghent** and **900 employees**



# Multi-Service Company



## Water Supply

- Production, delivery
- Customer service: metering etc.

## Domain Services

- Build & Maintain Infrastructure for water and sewage

## Sports

- Management and maintenance of over 80 swimming pools and sport facilities

## CREAT

- Purchase center for governmental and non-profit organizations
- Online catalogs & procurement

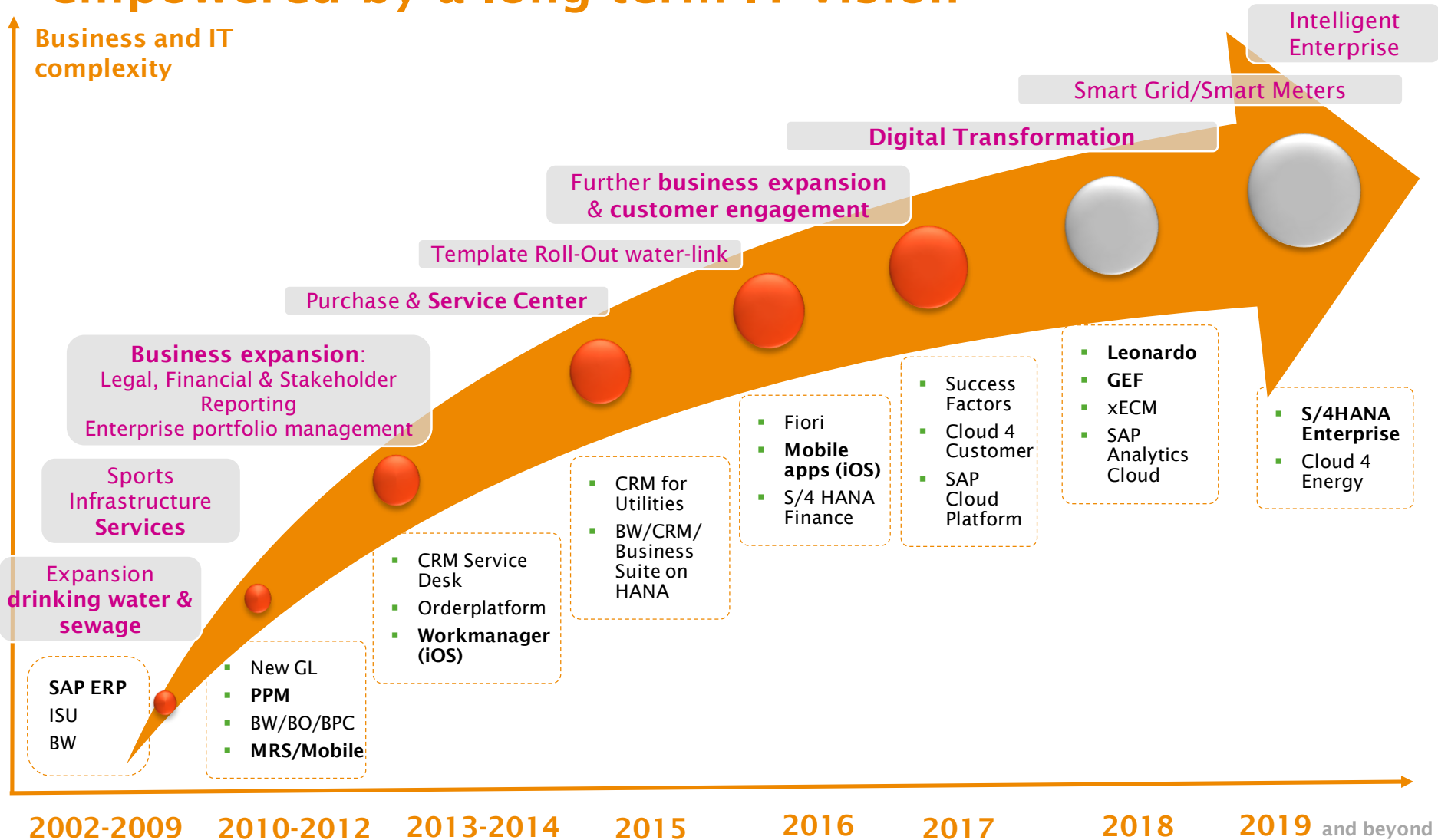
## AquaDomo & RENI

- Water management, re-use, treatment, rainwater, and sanitation



# Continuous Business Transformation

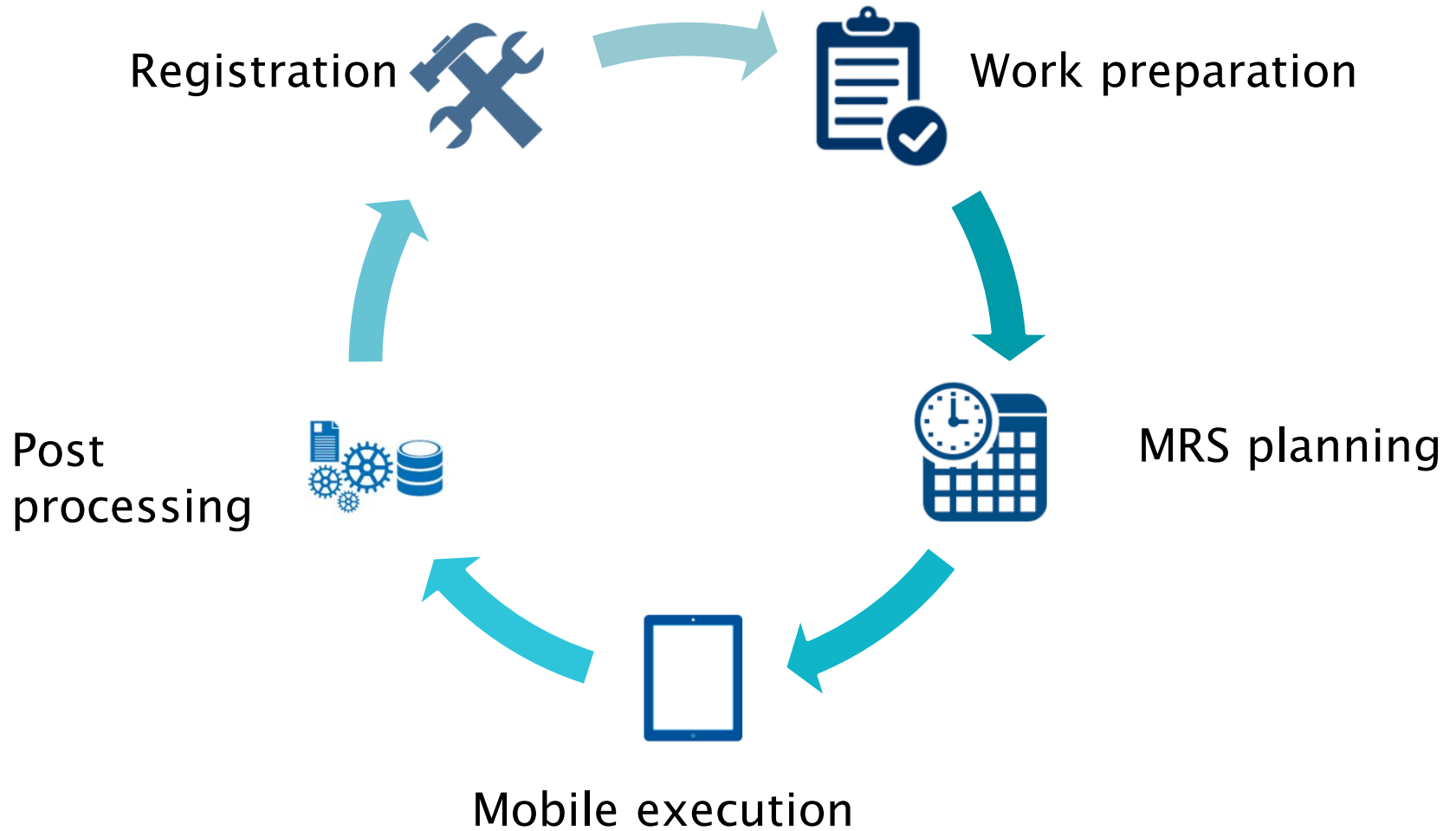
## empowered by a long term IT vision





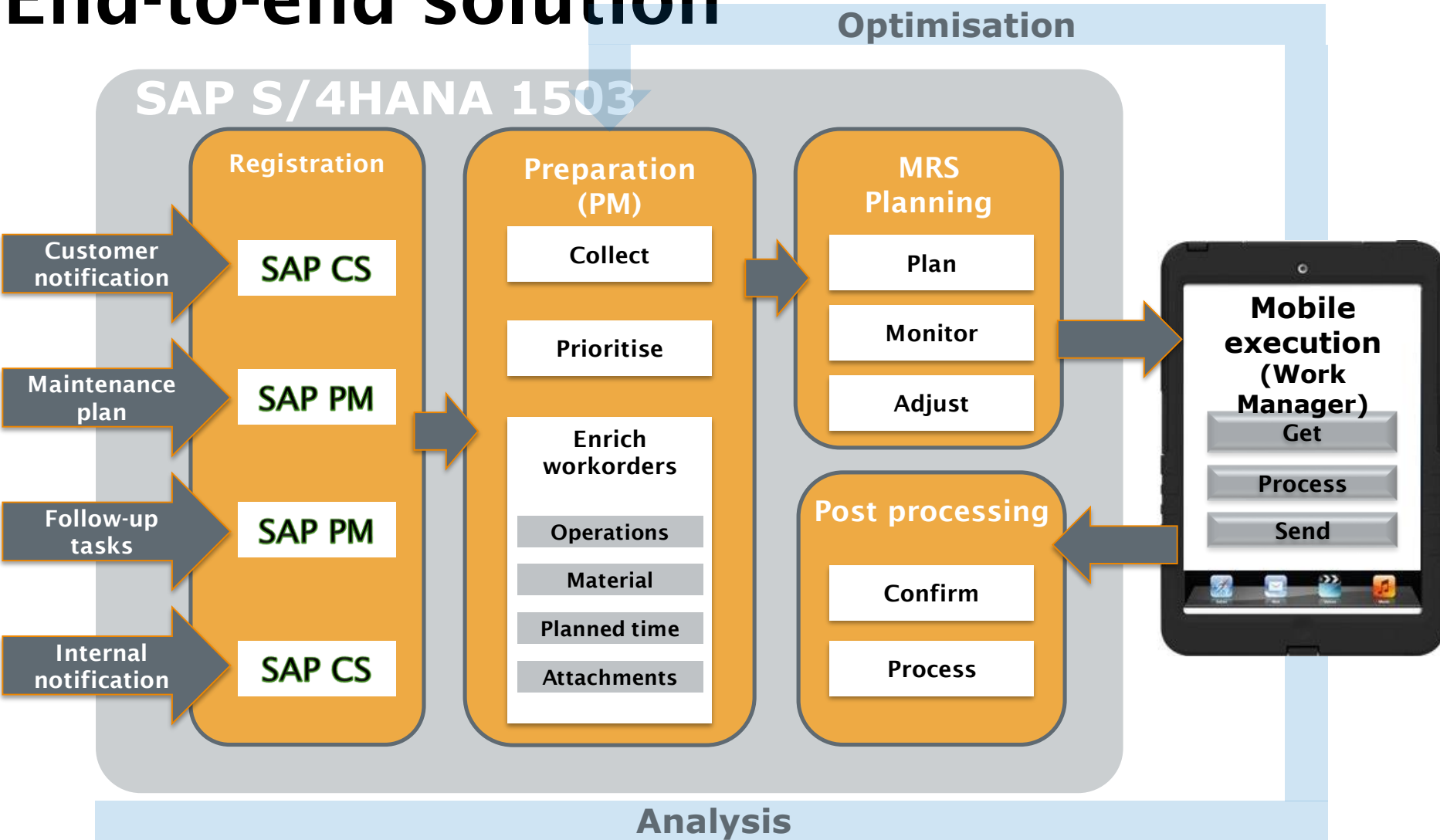
# Digital Asset Management

# Asset Maintenance flow



# Asset Maintenance Flow

## End-to-end solution





# Work preparation

## Enrich work orders

- Long text
- Attachments
  - Photo
  - Sketch
  - Other documents
- Priority
- Standard task lists
  - Who executes
    - What
    - Duration
    - Number of people
    - When
  - Services
  - Materials

The screenshot displays a software interface for work order preparation. The main window is titled "Interventies - tlv derden 80365874 wijzigen: Taaklijnen". It shows various fields for order details, including order number, system status, and OHPreStt. Below this, there are tabs for "Kopgegevens", "Taaklijnen", "Boekhoudkundige gegevens", and "Uitbreiding".

The "Taaklijnen" tab is active, showing a table of tasks with columns: Op., Sb..., Werkplek, Ve..., Be..., Ref.code T., Omschr. operatie, LT, Werk, E..., A..., Norm..., Eh., Berec.code, PrSit, and Ont. The table contains several rows of task data, such as "DEFECT: Aaigemstraat 29, GV / 9000 Gent" and "DVLAEERE".

Below the task lines, there are tabs for "Algemeen", "Intern", "Uitbesteed", "Termijnen", and "Werkl.geg.". The "Uitbreiding" tab is selected, showing a table of components with columns: Po..., Component, Omschr., LT, Behoeftzvh., HE, P., S., Mag., Vest, Op., Charge, and Verwervingstype. The table lists various components like "HYDRANT 80 LANG" and "STRAA TPOT HYDRANT".

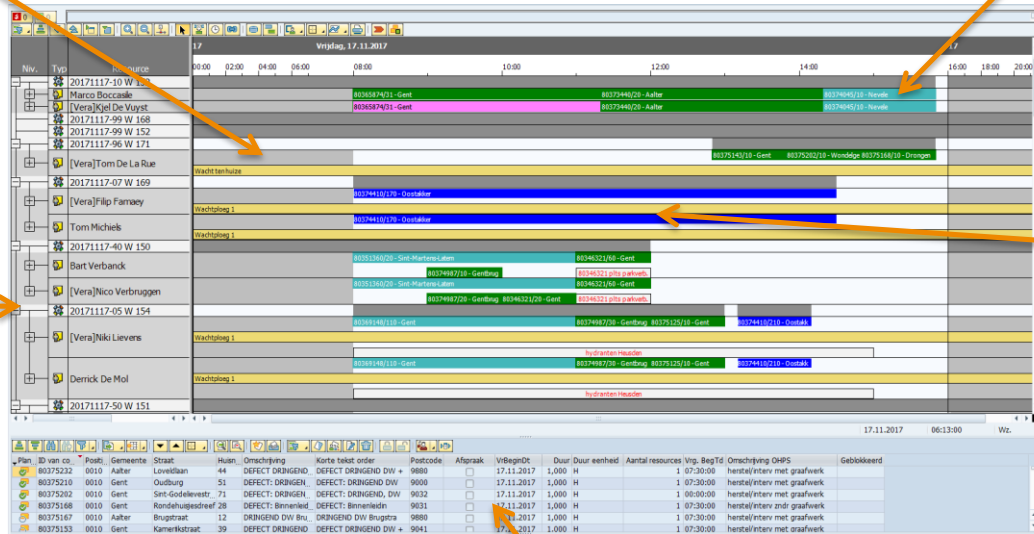
At the bottom, there is a "Partner" section with a table showing roles, partner names, and addresses, including "Opdrachtgever" and "Projectverantw.".

# MRS planning

Integration with HR →

Availabilities  
Guard duty  
Timetable

Manual planning/drag&drop



Real-time view on works



23/11/2017

Team-based planning

Separate planning by area

Integration with PM  
Open work order operations

# Mobile Execution - Functionalities

Different App (SAP Workmanager) for each target group



Field workers



Technical inspectors

Register leaks (Integration ESRI on HANA)

Time registration  
Measurement points  
Long text (notification)

Meter reading route  
Add operations/tasks  
Material reservation  
Checklists

Individual meter reading  
Consult meter reading  
Attachments (consult/add)  
Long text (order/operation)  
Charge additional work  
Get orders  
Urgent intervention

Replace equipment/meter  
Place equipment/meter  
Remove equipment/meter  
Material management

Submit **claims**



Subcontractors

Opdrachten +

**dringend**

Order 80159317  
 Gepland 28/08/2017 8u00  
 Status NFAC PLAN  
 Adres Sleepstraat  
 Stad Gent

**Hydranten** **Hydrant controle**

Order  
 Gepland  
 Status  
 Adr  
 S

Order: 80253962 Pastorijweg 53 Klantnr.: 10356607

Detail	Meters	Info	Handtekening	Materiaal	Bijlagen
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**Klant**

Naam MAURICE DE VIS  
Straat Pastorijweg 53  
 Adres Affligem 1790  
 Telefoon +3253661884

**Werken**

Straat Pastorijweg 53  
 Stad Affligem 1790  
 Opmerking  
Functieplaats garage, zijingang,poort

Equipments

ORZAAKANALYSE

HISTORIEK

**DEMO**  
**Mobile**



# Mobile execution

## Example Work Manager



Field workers



Subcontractors



Technical visitors

Proximus 21:34 55%

**Opdrachten** +

**dringend**

Order: 80159317  
Gepland: 28/08/2017 8u00  
Status: NFAC PLAN  
Adres: Sleepstraat  
Stad: Gent

**Hydranten uitgebreide controle**

Order: 80247527  
Gepland: 27/09/2017 8u00  
Status: NFAC PLAN  
Adres:  
Stad: Dendermonde

**DEFECT: lek vk**

Order: 80253962  
Gepland: 27/09/2017 9u10  
Status: AFSP NFAC PLAN  
Adres: Pastorijweg 53  
Stad: Affligem

Order: 80253962 Pastorijweg 53 Klantnr.: 10356607

Detail Meters Info Handtekening Materiaal Bijlagen

**Klant**

Naam: MAURICE DE VIS  
Straat: Pastorijweg 53  
Stad: Affligem 1790  
Telefoon: +3253661884  
GSM:  
Email:

**Werken**

Straat: Pastorijweg 53  
Stad: Affligem 1790  
Opmerking:  
Functieplaats: garage, zijingang,poort

Equipments

WEGHERSTEL ORZAAKANALYSE HISTORIEK

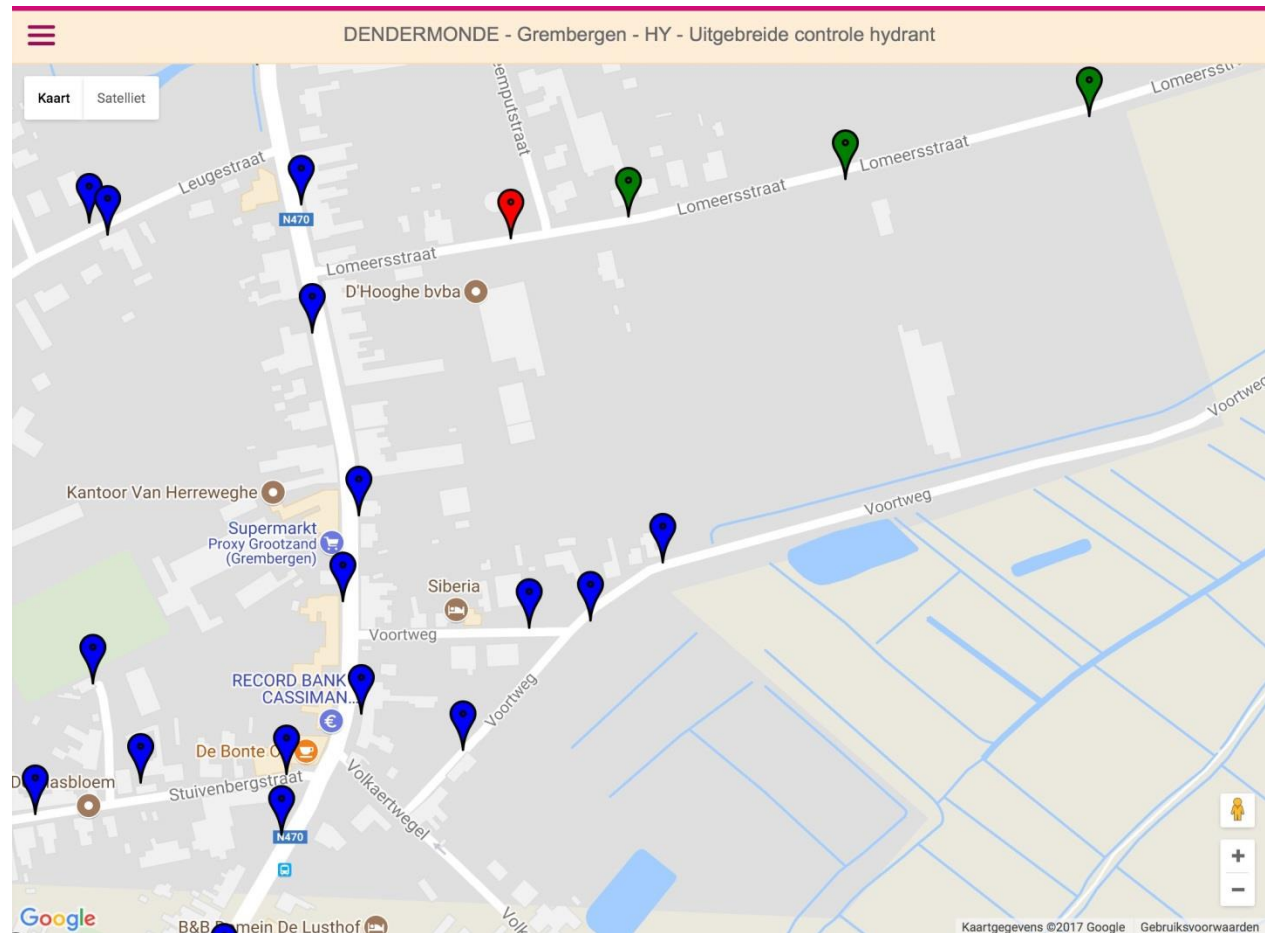
VOORBEREIDING NAVERWERKING VERLIES TERUGRIT PAUZE DOUCHE EINDE

# Mobile execution

## Example Hydrant Inspection (Hybrid Application)



Hydrants



# Mobile execution

Example Measurement points (Hybrid application)



Karel Verbanck

← Meters (3) ←
Meetpunt

**ANDERE METERS**

**Aantallen** 3 G verbruik eigen opname 2  
Andere Meters

**GASMETERS**

Gasmeters		Ingevoerde waarden			
Gasmeter 1	1	Datum	Waarde	Gemiddelde waarde	
EAN: 541448810000016567		1 mei 2016	305,5 M3	0,88 M3	⊗
Gasmeters		27 april 2016	302 M3	0,2 M3	⊗
		22 april 2016	301 M3	1 M3	⊗
<b>Gasmeter 2</b>	<b>1</b>	22 april 2016	300 M3	0 M3	⊗
EAN: 541448860010126190		19 april 2016	300 M3	0 M3	⊗
Gasmeters					

# Mobile execution











## Example material catalog




Proximus 20:24 91%

FARYS

Search: Schuif

-  AANBOORZAD 2 SCHUIF 80-300 ZOND BEUGEL  
artikelnr: 1663
-  AANBOORZAD 2 SCHUIF 350-500 ZOND BEUGEL  
artikelnr: 9762
-  EL-OVERSCHUIFFLENS 65 (PE DN63)  
artikelnr: 677
-  EL-OVERSCHUIFFLENS 100 (PE DN110)  
artikelnr: 679
-  EL-OVERSCHUIFFLENS 150 (PE DN160)  
artikelnr: 680
-  EL-OVERSCHUIFFLENS 200 (PE DN200-225)  
artikelnr: 682
-  EL-OVERSCHUIFFLENS 250 (PE DN250)  
artikelnr: 683
-  EL-OVERSCHUIFFLENS 300 (PE DN315)  
artikelnr: 684
-  EL-OVERSCHUIFFLENS 350 (PE DN355)  
artikelnr: 9035
-  EL-OVERSCHUIFFLENS 80 (PE DN90)

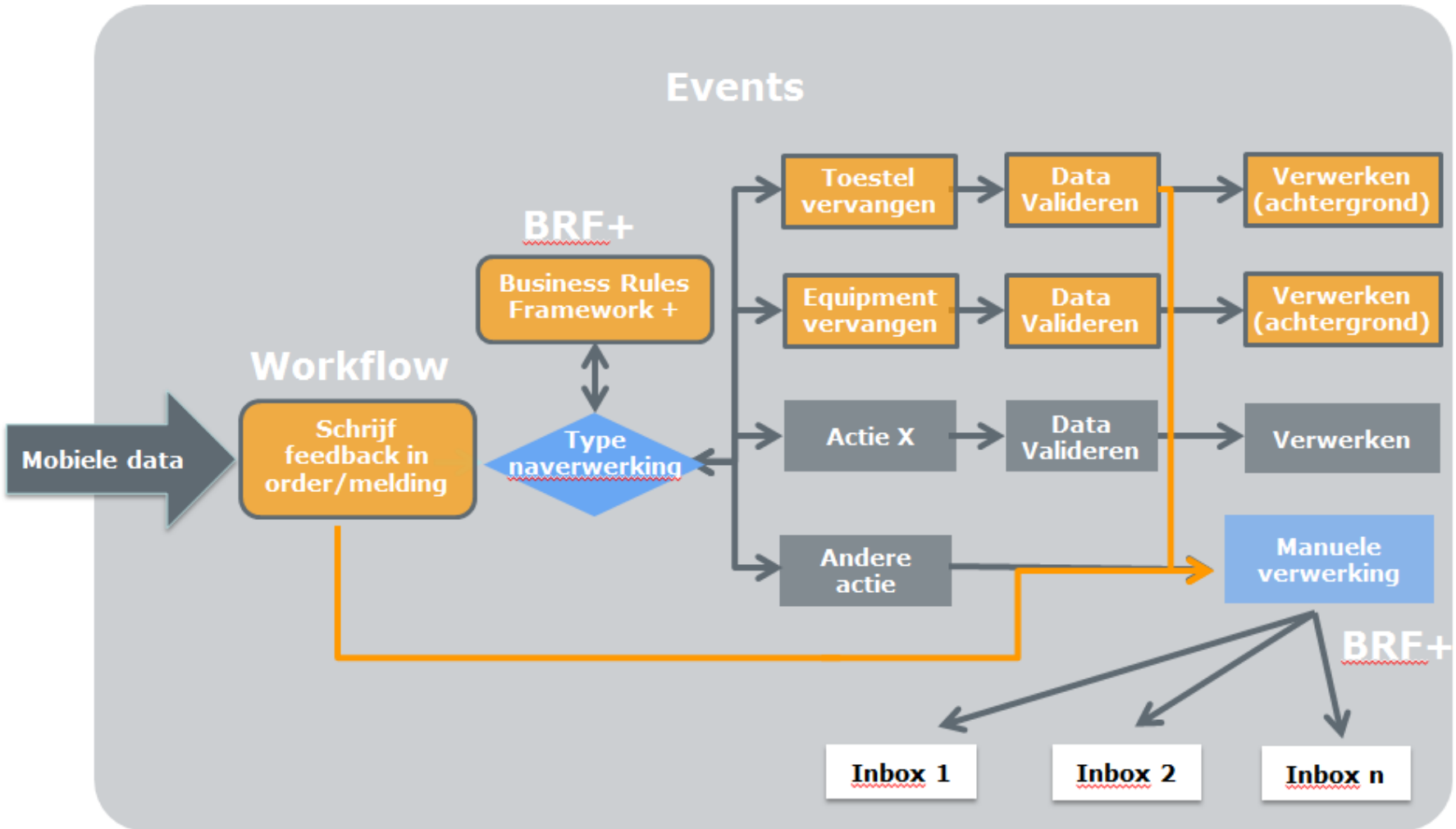


AANBOORZAD 2 SCHUIF 80-300 ZOND BEUGEL  
Aantal: 1, Eenheid: st  
Type: Huisaansluitingen

Catalogus



# Post processing



# Reporting

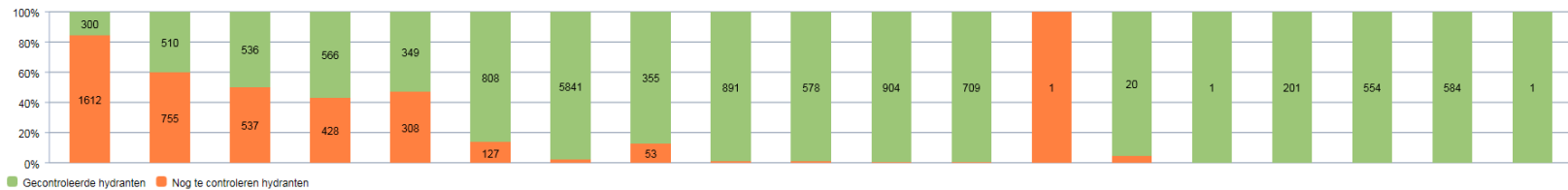
## Dashboards hydrants

### Hydranten: controle overzicht over alle gemeenten

Jaar: 2017

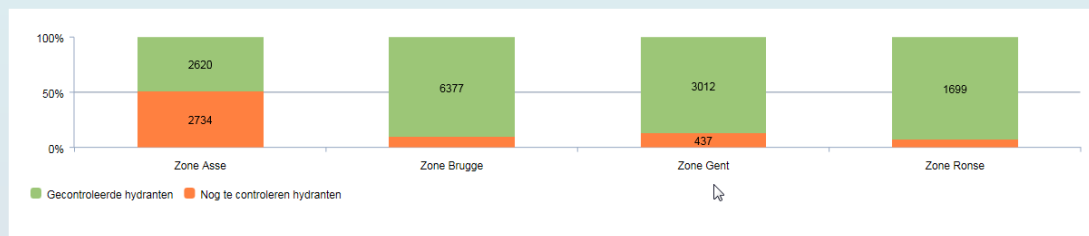
Zone: Alle zones

Gemeente: Alle gemeenten



#### Top 10 nog te controleren deelgemeenten

Deelgemeente	AS	Nog te controleren hydranten
D-008-00-HY	ASSE - Asse - HY	674
D-035-02-HY	DENDERMONDE - St. Gillis - HY	427
D-037-01-HY	DESTELBERGEN - Heusden - HY	364
D-035-04-HY	DENDERMONDE - Grembergen - HY	352
D-035-03-HY	DENDERMONDE - Baasrode - HY	315
D-120-00-HY	MACHELEN - Machelen - HY	303
D-031-01-HY	DAMME - Moerkkerke - HY	274
D-035-00-HY	DENDERMONDE - Dendermonde - HY	193
D-035-06-HY	DENDERMONDE - Oudegem - HY	165
D-031-03-HY	DAMME - Sijsele - HY	136



○ ○ ○

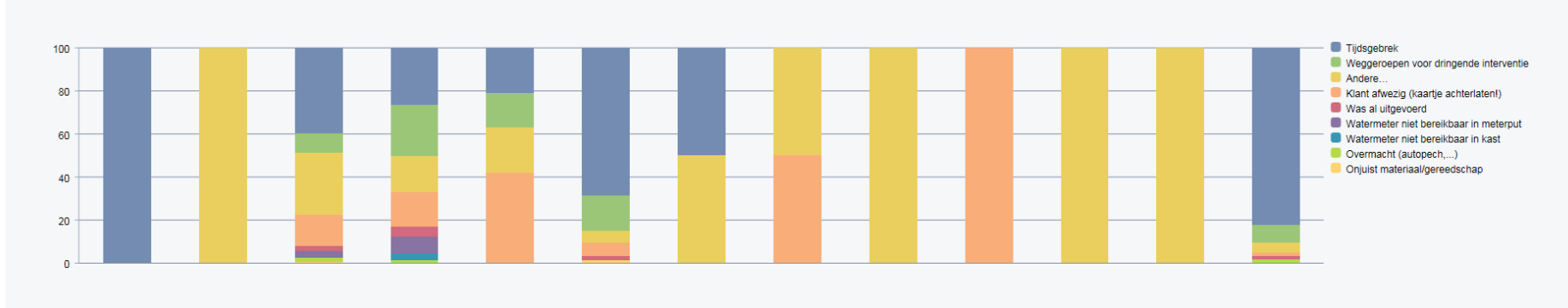
# Reporting

## Dashboards SAP Workmanager

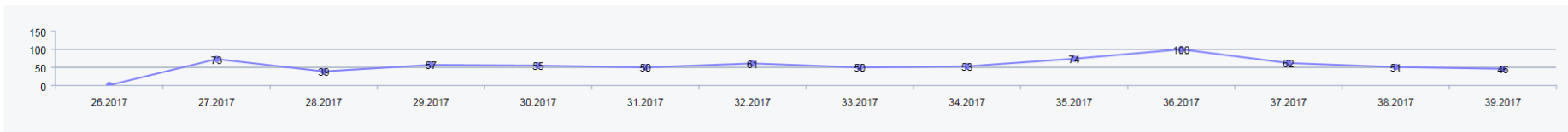
### KPI 4 - Reden van niet uitvoering werken

Filter verantwoordelijke kostenplaatsen:

#### Alle reden Alle verantwoordelijke kostenplaatsen



#### Aantal acties per week voor de reden: 'Alle reden'



# Benefits

## Planning

- More conscious work order preparation and planning
- Improved data quality, monitoring and efficiency

## Workorder execution

- Field agents informed with relevant and up to date data
- More and better feedback with less effort

## Back-office post processing

- Reduce lead times to invoices
- Reduce workload (85% of manual actions have been automated)

## Environment

- Reducing paper usage
- Optimized lorry stock = less weight = less CO2



**Roadmap  
Integrated  
Asset  
Management**

# Integrating SAP with GIS

## Geo Enablement Framework

# Innovation

## Choosing an IoT-platform

- A **future-proof cloud architecture**, taking into consideration:
  - The longterm **business roadmap** of FARYS
  - The existing productive landscape and suite of products
- **Ownership** of data in the cloud
- **Independance**
  - Of IoT hardware providers
  - Of communication providers
- **Compliance** with GDPR
- An **open IoT platform**, to enable collaboration and co-innovation
- Support of a broad range of **standard protocols** and integration scenarios
- **Seamless integration** into existing IT landscape

# Innovation

## Our IoT start-up approach

- Define the **overall architecture** for the future
  - Think big
- Smart Meters vs Sensors
  - Is there a difference?
  - Search for **synergy**
- IoT **specifics** in (water) utilities
  - Wide spread location, not always accessible
  - Costly sensors
  - Battery life
  - SCADA-systems already in place
- Co-innovation
  - Circular Economy
  - Tomorrowlab
  - SAP Cloud4Energy
- Learn from **pilots**
  - Begin small



# Innovation

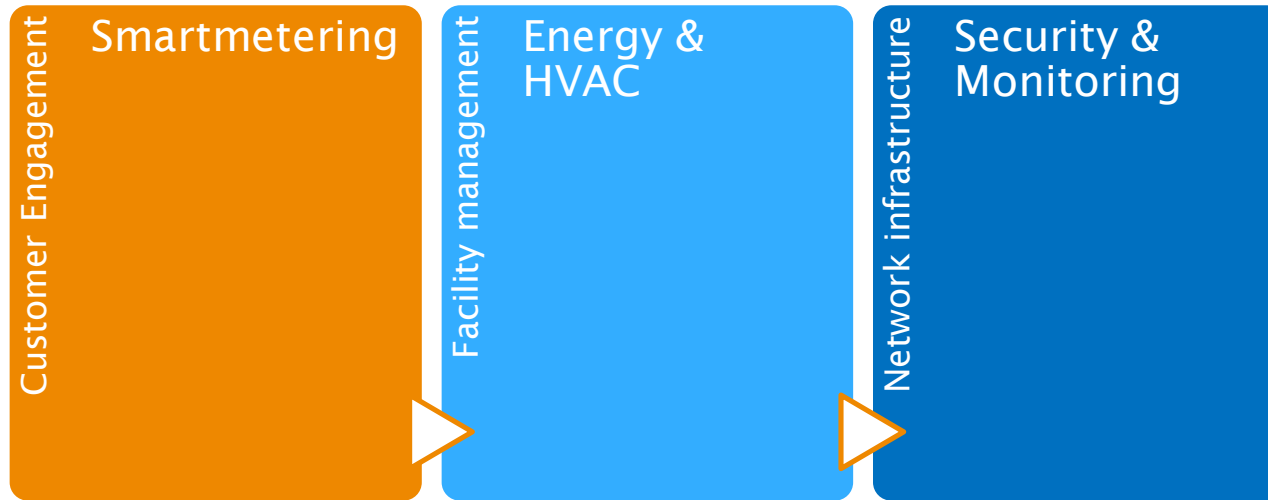
## Purpose of Pilots

- Embracing a **culture of innovation**
- **Gathering knowledge** to support business case development
- Impact on business processes
- **Insight** in IoT-platform
- Stability/availability different **communication networks**
- Robustness/availability different kinds of **sensors**
- Provisioning/availability of data
- **Interconnection/collaboration** between different vendors & technologies



**Demo of pilots**

# Pilots in scope today



# Customer Engagement

Customer Engagement

Smartmetering

- Smartmetering, B2C (Meters 'Zenner )
- Smartmetering B2B (LoRa Pulssensor) at Beernem (DMA)



- Smartmetering “Nieuwe Dokken”



# DE NIEUWE DOKKEN

An architectural rendering of a modern urban district at dusk. The scene features several multi-story buildings with illuminated windows and balconies, some with greenery. The buildings are situated along a waterfront, with a bridge and water visible in the foreground. The sky is a mix of dark blue and orange, suggesting sunset or sunrise. The overall atmosphere is contemporary and sustainable.

## CIRCULAR ECONOMY IN A NEW URBAN DISTRICT IN GHENT

ZAWENT- CONCEPT

CASE: De Nieuwe Dokken – Ghent (Belgium)

FASE 2

FASE 1

FASE 3

FASE 4



➤ 400 housing units



➤ school/children day care/sports infrastructure



**VF (Vegetable- and fruits) KITCHENWASTE**



**WATER**



**BLACK WASTEWATER**



**GREY WASTEWATER**



**ANAEROBIC DIGESTOR**



**AEROBIC WATER SANITATION**



**BIOGAS**



**STRUVITE**



**EFFLUENT WATER**

**COMBINED HEAT & POWER**

**PROCESSED TO DEMIN WATER**

**GREEN POWER**

**GREEN HEAT**

**GREEN ZONES**

**NEIGHBORING INDUSTRY**

**INTERNAL INPUT**

**LOCAL PROCESS**

**OUTPUT**

**RE-USE**



# Smart metering – Pilot demo

- **Demo 1: Core functionalities** of the SAP Leonardo for IoT platform
  - Using a pre-delivered template application
  - Quick overview of the sensors and the raw data
  
- **Demo 2: SAP Analytics Cloud** smart metering analysis
  - Comparing multiple devices in a testing set-up
  - Mash-up data with external sources
  - Predictive forecasting



# Demo 1



SAP Leonardo IoT platform  
Demo

# Demo 2



## SAP Analytics Cloud Demo

# Energy Management

Facility management

Energy &  
HVAC

- LoRa pulssensor on kWh-meter at Watertower Gent-Kattenberg (P&T)



# Energy Management – case studies

- Water reservoir energy consumption management
- Pumping station energy monitoring
- FARYS Solar (PV panels) remote monitoring
  
- Facility management: general energy data management & monitoring
  - Office buildings
  - Technical buildings
  - Swimming pools
  - Sports Infrastructure

# FARYS Solar - Pilot mock-up

Solar panel parameters		
Parameter	Value	Norm
kVA	10	10
Output	50	100
Converter	80	100

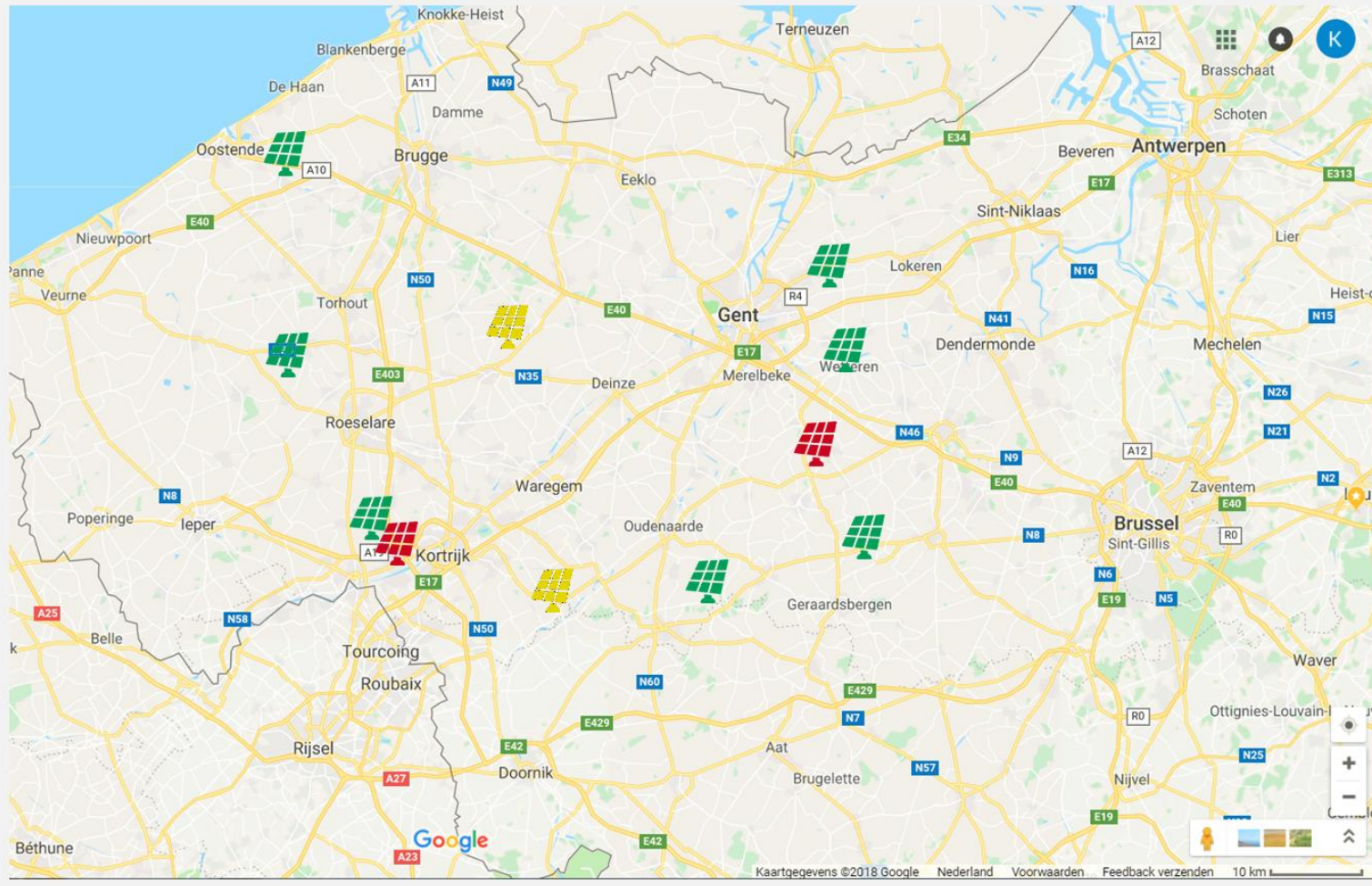
Solar panel alarms	
Alarms (last 10 days)	
None	

Maintenance history	
Date	Short description
21/1/2018	Cleaning
2/11/2017	Converter repair
3/3/2011	Installation

[Create workorder](#)



# Security & Monitoring

Drinkwaterinfra  
Security & Monitoring

- LoRa sewer lid and reservoirs entrance hatches sensor



- LoRa pulssensor in meterchamber  
Zeebrugge harbour

# Security – case studies

- (Unauthorised) Access monitoring
  - Combining door sensor data with work order/dispatching data and CCTV feeds
  - Detecting possible unauthorised access & triggering alarms/events
- Network and Information Security (NIS) compliance

# Access control - Pilot mock-up

Sensor ID	Sensor location	Date last opened	Status	Alert level
10039847	Watertoren Oostakker	20/03/2018		
10000374	Pompstation Asse	Today		
13058563	Mainvault main door	Today		
10023844	Watertoren Brugge	19/03/2018		
10385479	Pompstation Ronse	14/02/2017		

Work order overview for sensor 10000374	
Work order date	Short description
12/12/2017	Replacement of measurement tube
03/11/2017	Periodic inspection of pumps

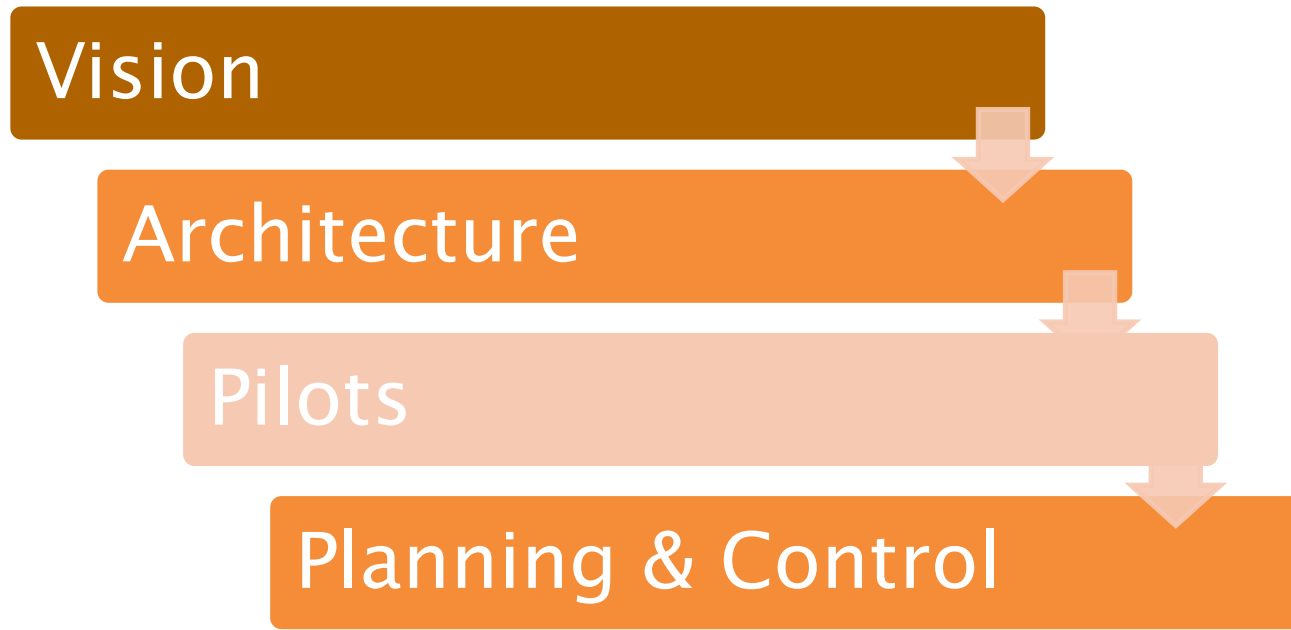






**Conclusion**

# Be in control!



A **clear vision** and a **solid architecture** keeps you in **control** to enable all IoT business initiatives and provide the right environment for **robust** and **secure** business development.

# Executive Value Network for Water

## Leverage water innovations and thrive in the New Digital Economy

Gent, June 13th – 14th



# Questions?



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