Reducing water loss to support sustainable water management

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14 September 2022

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Non-revenue water challenges in Flanders, Belgium

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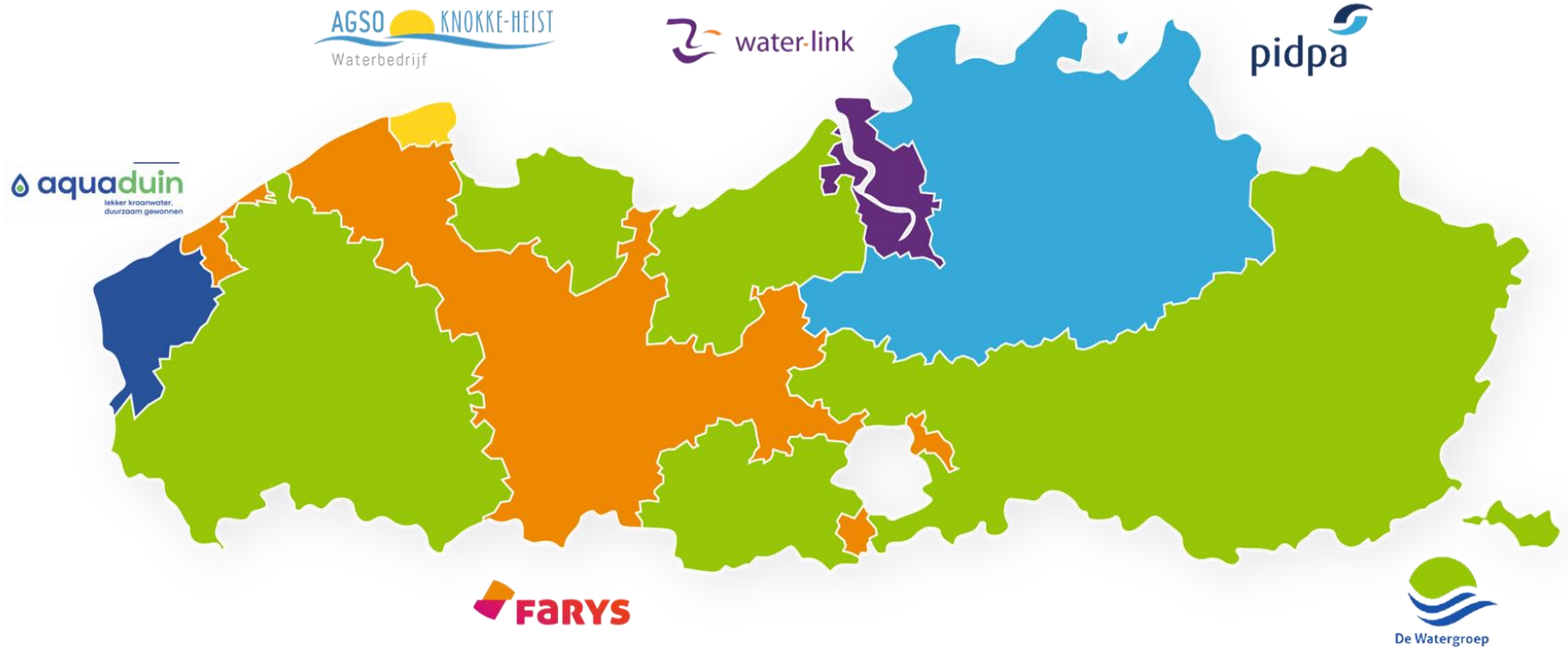
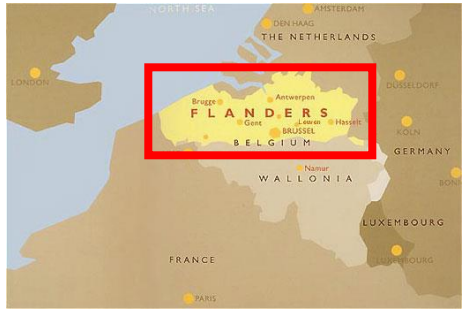
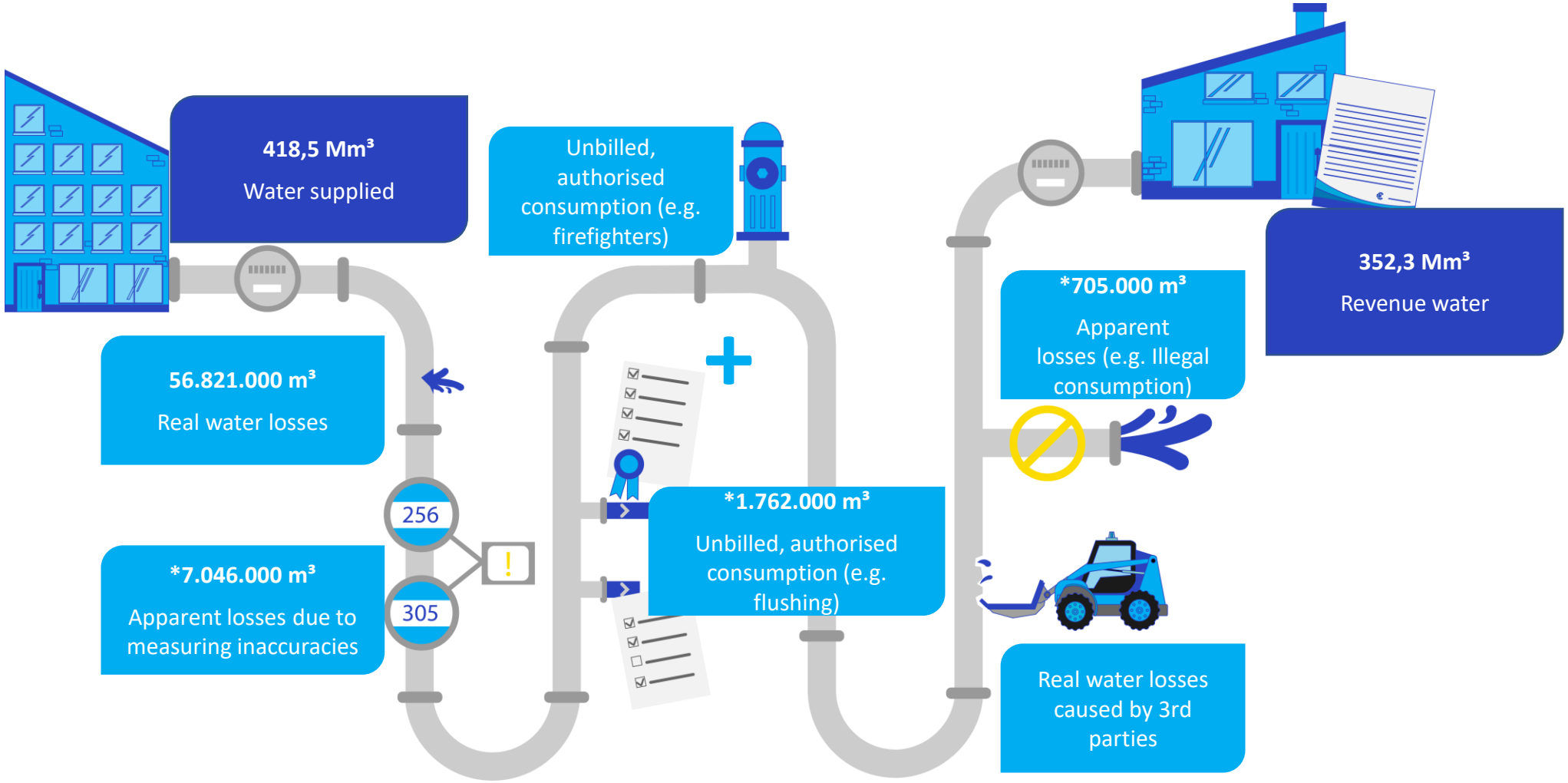
Water utilities in Flanders



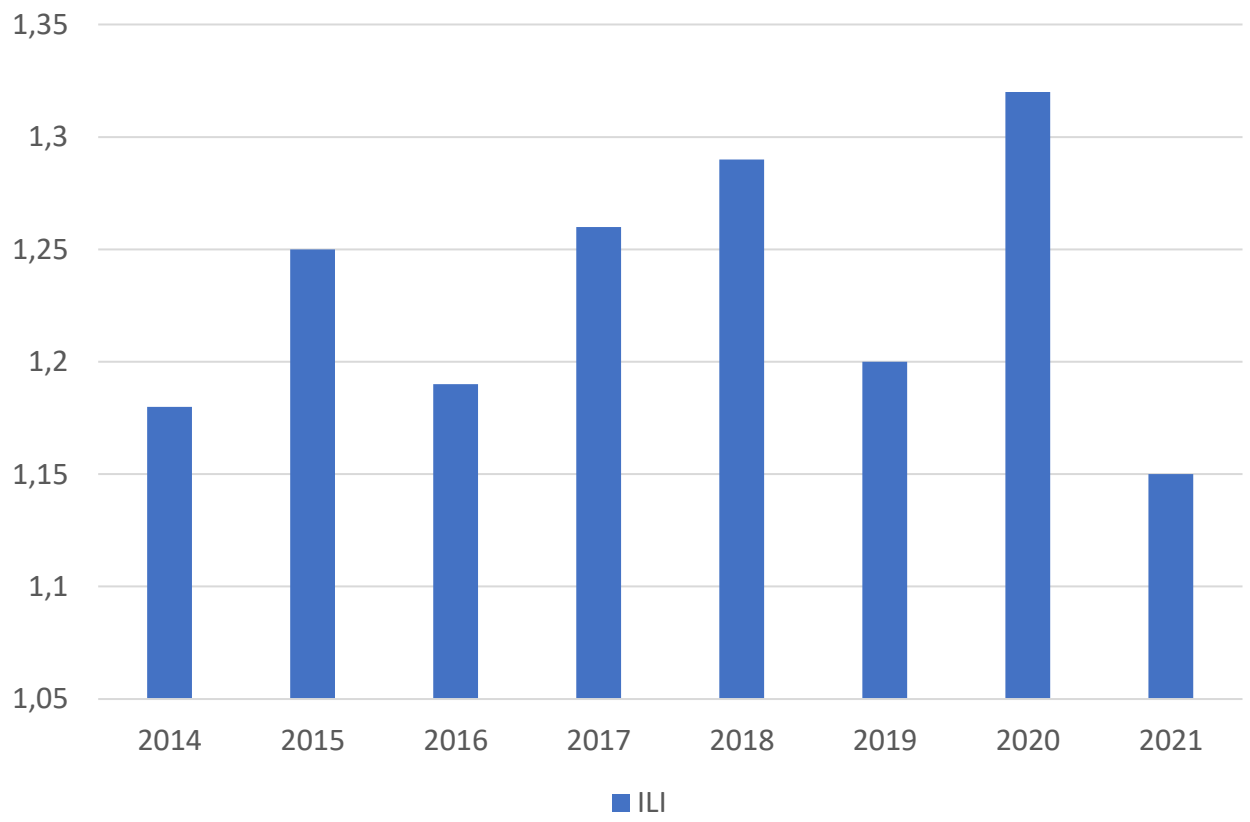


Water balance (Flanders 2021)



* As per guideline max. Default %s

Evolution in Flanders



Year	NRW (%) Flanders	NRW (Mm^3) Flanders	m^3 / km / day (NRW)	Ltr / conn. / day (NRW)
2014	16,6	67,5	3,0	74,2
2015	17,3	71,2	2,9	73,2
2016	16,8	68,9	2,9	73,0
2017	17,3	72,6	3,0	77,6
2018	17,4	75,1	3,1	76,4
2019	16,6	70,3	3,0	74,0
2020	17,2	73,3	3,2	80,8
2021	15,8	66,3	2,9	72,3

Ambitious targets

Commitment from utilities to reduce non-revenue water

- Best efforts obligation: reducing water losses by half in 2025
  - In line with Blue Deal ambitions

- Safeguarding 'sustainability' ambitions:
  - Balancing NRW specific reduction costs vs. socio-ecological & economical value of water.
  - Proper management & culture of innovation are essential!

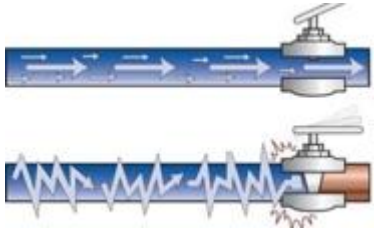
Various practical challenges

Soil composition

Temperature

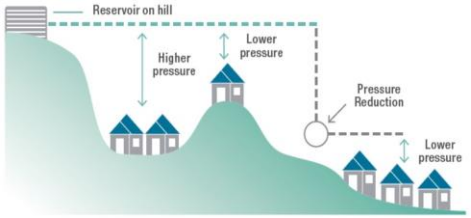
Device and pipeline material

Interference other utilities



Operational management

Pipeline age



Topography

Installation conditions

Sensitivity to corrossion

Urbanisation

Action plan

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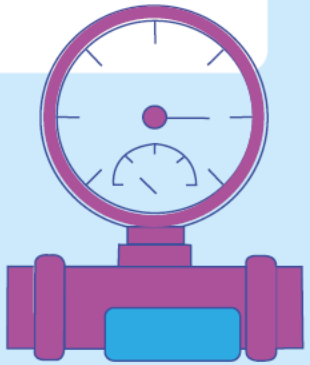
Action plan

Culture of innovation and cooperation

- Knowledge sharing
- Innovative leak reduction projects
- Intelligent data monitoring & analysis
- Cooperation with external partners

Avoiding leaks

- Optimising pressure management
- High-quality pipe replacement



Proactive leak reduction & quick repair time

- DMA construction
- Data analysis
- Specialised leak detectors
- Quick repair times

Improving measurement accuracy

- Modern measuring tools
- Mapping authorised, unbilled consumption

(Some) realisations and innovations

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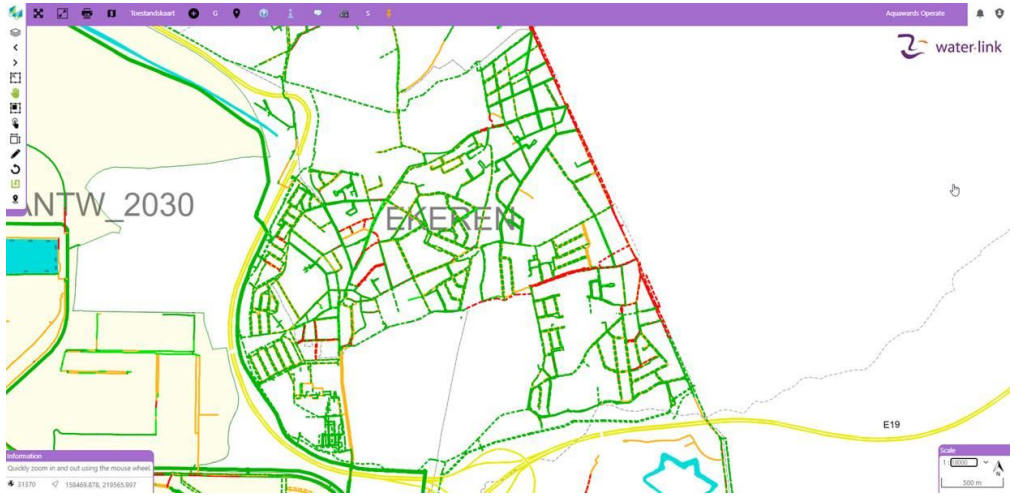
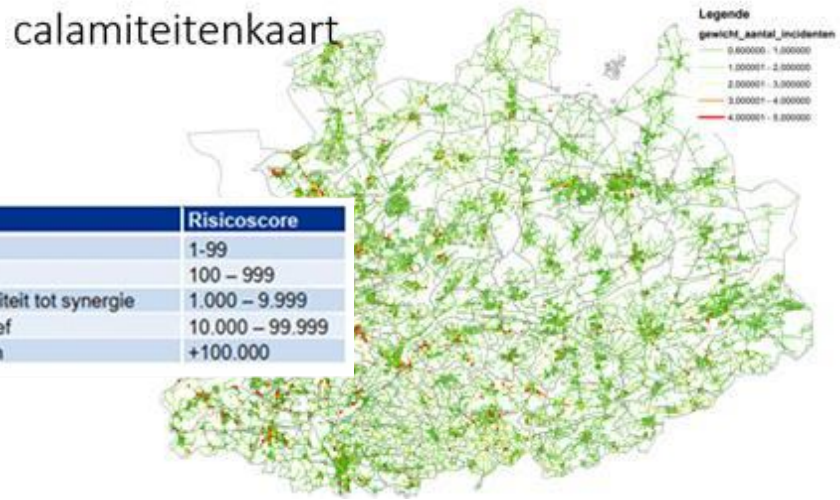
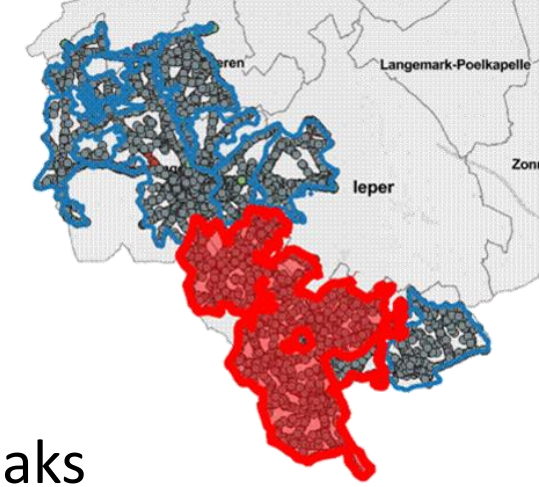
Efficient pipe replacement

Pipe condition mapping



Risicogroep	Actie	Risicoscore
A	Asset in uitstekende staat	1-99
B	Asset op te volgen / actief beheren	100 – 999
C	Asset te vervangen indien opportuniteit tot synergie	1.000 – 9.999
D	Asset te vervangen op eigen initiatief	10.000 – 99.999
E	Asset zo snel mogelijk te vervangen	+100.000



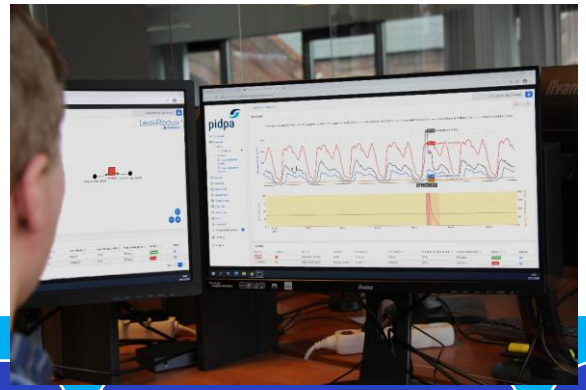


Pressure management

PoC Inflowmatix (De Watergroep)

- Pressure peaks and high pressure in general cause more leaks
- Step 1: detecting and measuring pressure peaks
- Step 2: avoiding and managing pressure peaks = NRW reduction

Proactive leak detection & quick repairs



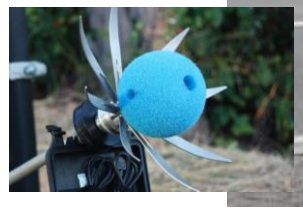
DMA

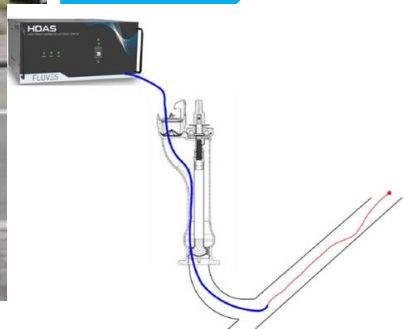
Data transfer to software

AI algorithm and visualisation

Leak detection

Quick repair times





Measuring accuracy

- Digital water meters
  - Need for more metrological insight
  - Data for DMA analysis
- Measuring quality of flushing losses

PoC: digital water meter with acoustic noise detection

Conclusion

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Conclusion

1. Water companies are serious about leak reduction
   - 10% decrease is the result of years of efforts

2. Changing context: additional efforts & new opportunities
   - Additional effort due to drought and water scarcity
   - New opportunities: technology and data revolution

3. Reducing leakage losses is part of corporate culture
   - In daily operations
   - In long-term decisions

4. Leak control through roll-out of action plan: structural follow-up & adjustment