STORMHARVESTER®
SMARTER DRAINAGE SOLUTIONS

BIG DATA + MACHINE LEARNING FOR SMART SEWER BLOCKAGE PREDICTION, FLOW PREDICTION & SMART STORM TANK ATTENUATION

CIWEM Chartered Institution of Water and Environmental Management
Urban Drainage Group

Date: 11th November 2021 | Presented by: James Ogden, Director of Business Development

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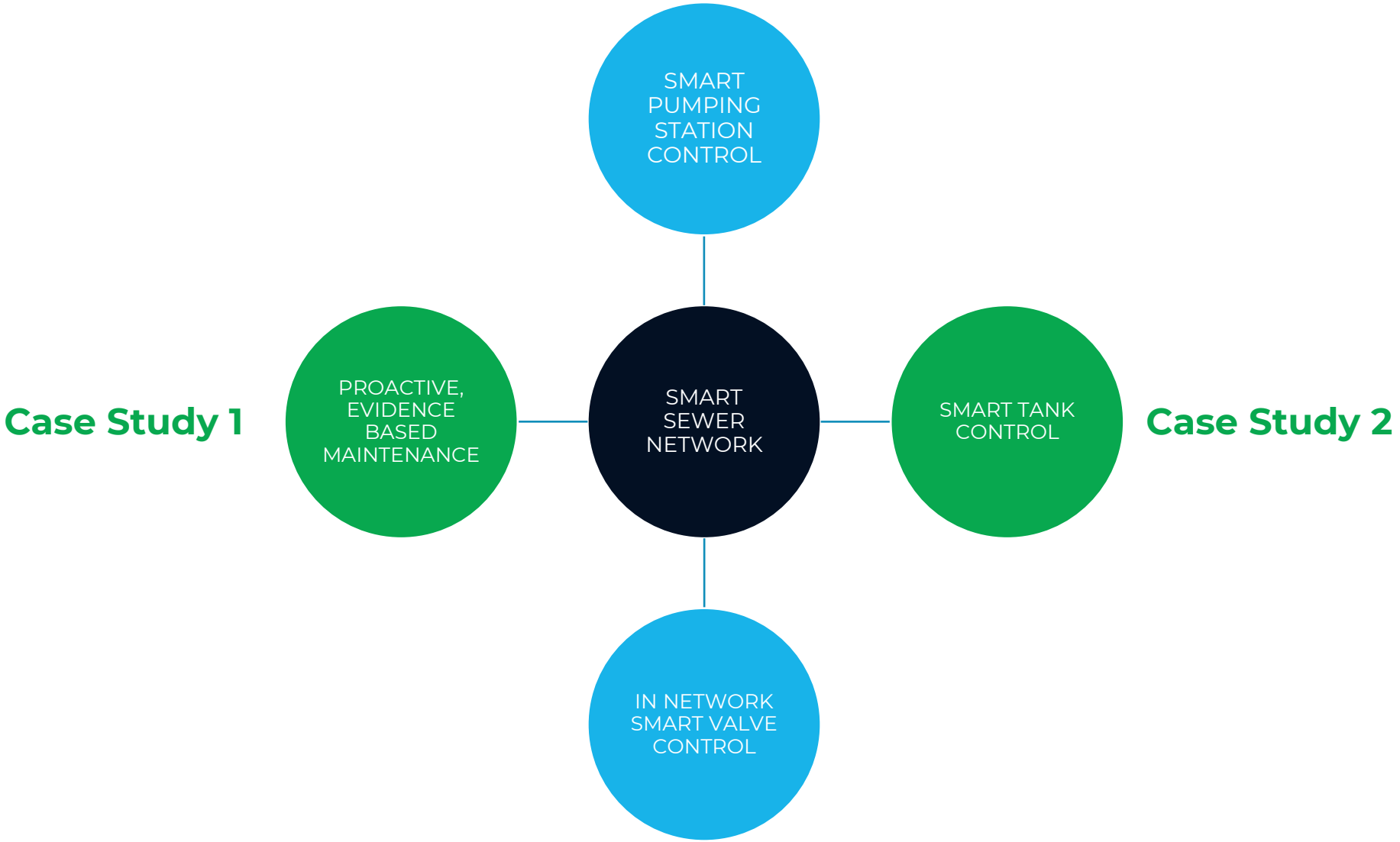

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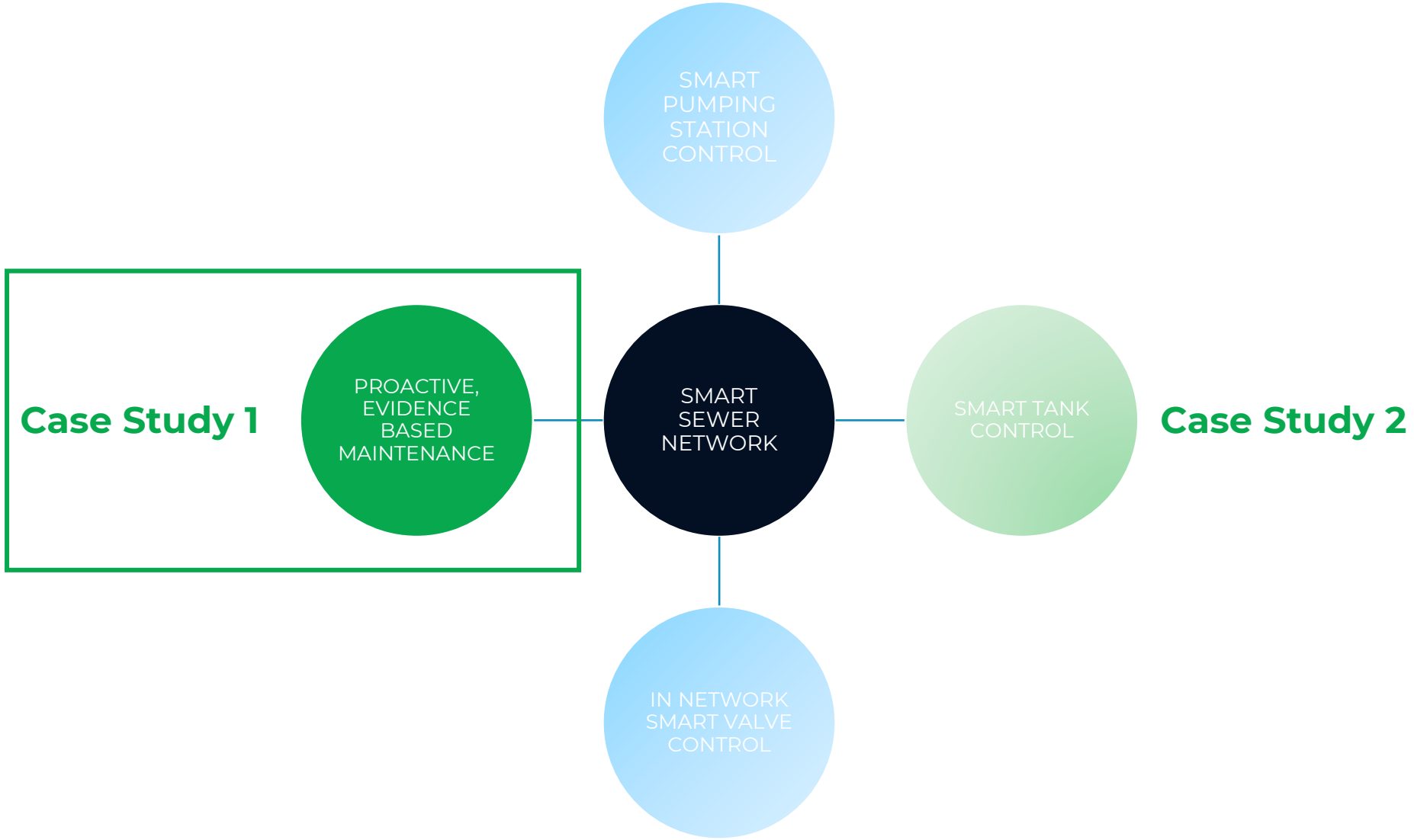
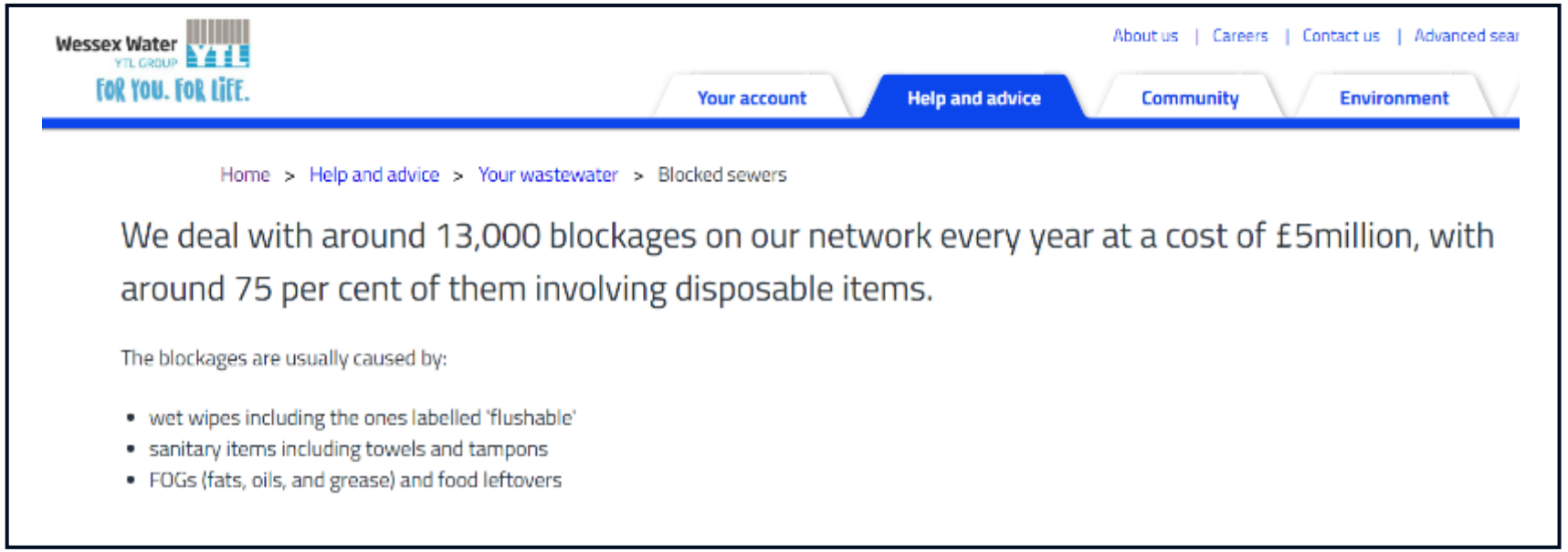


WESSEX WATER CASE STUDY.

PROBLEM QUOTE

"One of the biggest problems we have serving our customers is not knowing where and when blockages will occur, or are likely to occur, in the wastewater network"

Jody Knight, Asset Technology Manager - Wessex Water

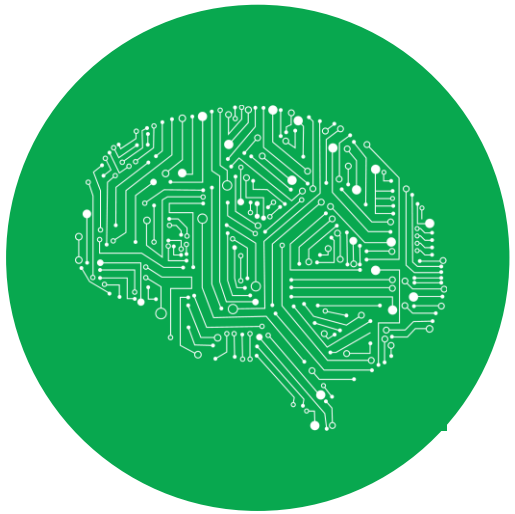


WESSEX WATER CASE STUDY.

Wessex Water
YTL GROUP
FOR YOU. FOR LIFE.

Marketplace CHALLENGE

Identify blockages using AI ...



- **16** companies applied
- **3** chosen for live trial
- **3** month trial – Summer 2020
- **98** existing sensors

LIVE TRIAL - CITY OF BATH

- 200,000 People
- 54,0742 M Sewers

HOW WE WORK.

HISTORIC SEWER LEVEL DATA

CURRENT (REAL-TIME) SEWER LEVEL DATA

HYPERLOCAL RAINFALL DATA
LOCAL RIVER LEVELS
TIDAL PATTERNS
BOREHOLE LEVELS
(EVERY 15 MINS)

BIG DATA

MILLIONS OF DATA SETS

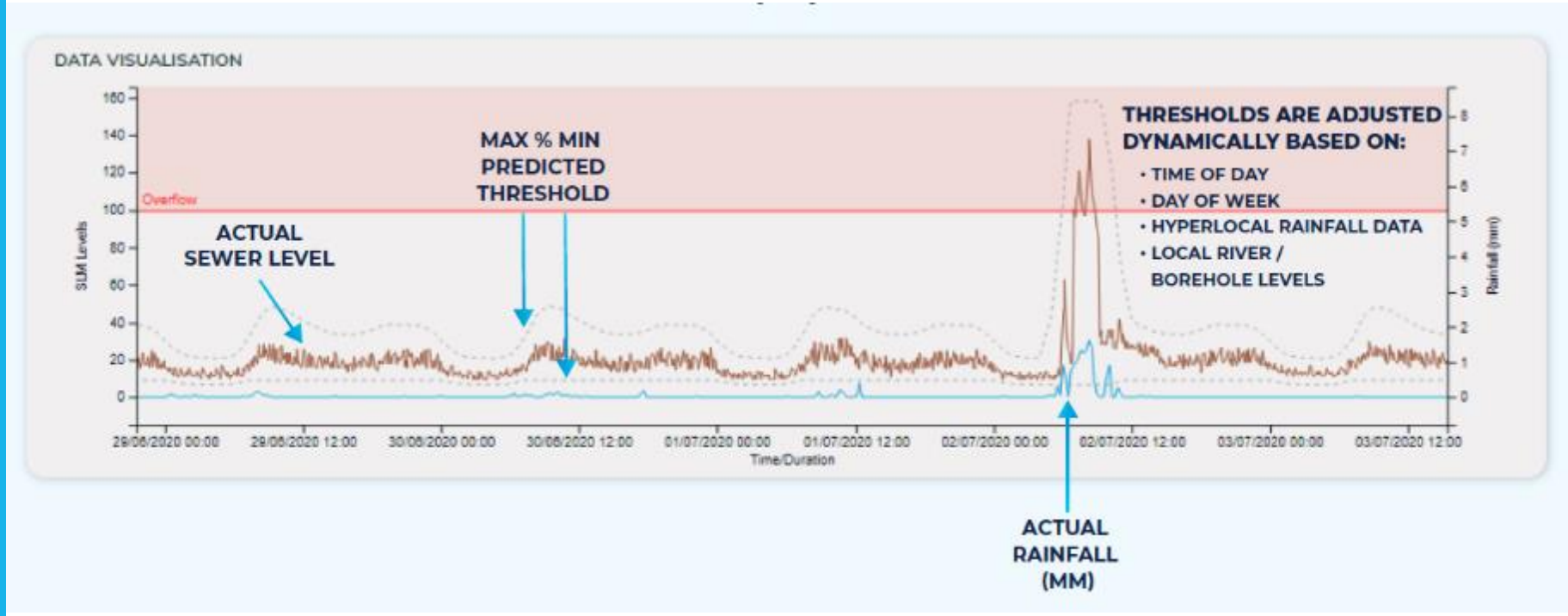
MACHINE LEARNING
CLOUD COMPUTING

THE STORMHARVESTER
MACHINE LEARNING APPROACH

PREDICTIONS + ANALYTICS AND WARNING + INTERVENTION

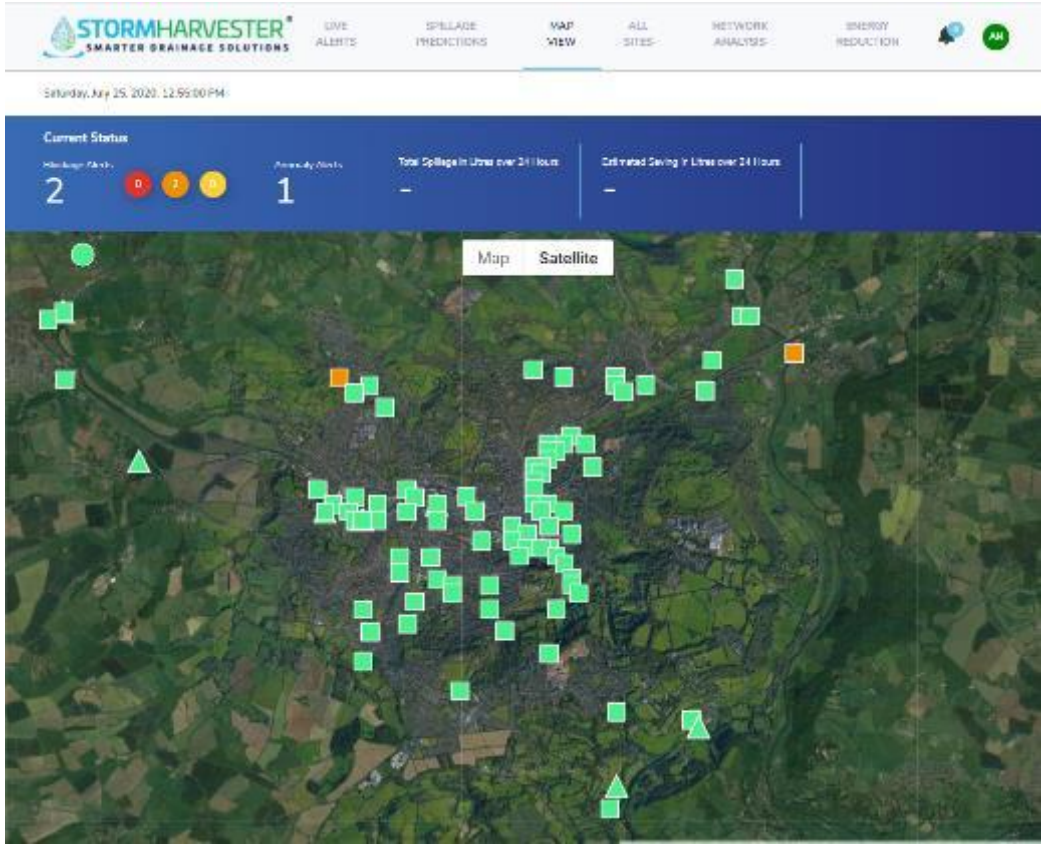
PREDICTING DYNAMIC LEVEL THRESHOLDS.

- Dynamic operating threshold window predicted
- Levels breaching dynamic operating threshold window indicate blockages or anomalies

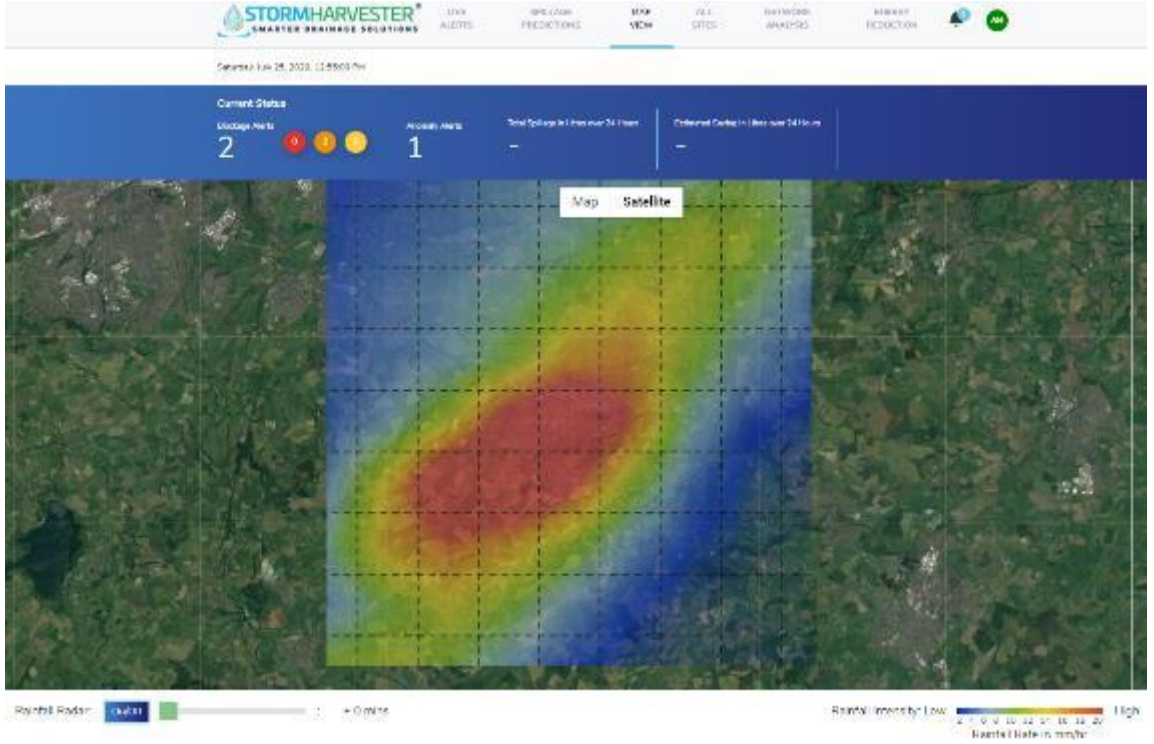


BATH CATCHMENT – SENSOR DATA & HYPERLOCAL RAINFALL.

- 98 Wastewater Network Sensors
  - CSOs monitors
  - EDM monitors
  - Sewer level monitors
  - Pumping station monitors



- Asset Specific Rainfall Forecasts



TRIAL RESULTS - CITY OF BATH, ENGLAND.

QUOTE

"During the trial, StormHarvester was able to identify sewer blockages very early on and we were therefore able to get the Operation teams to proactively intervene. This significantly increased our chances of preventing spillages"

Edmund Willatts, Assets Reliability Engineer Wessex Water

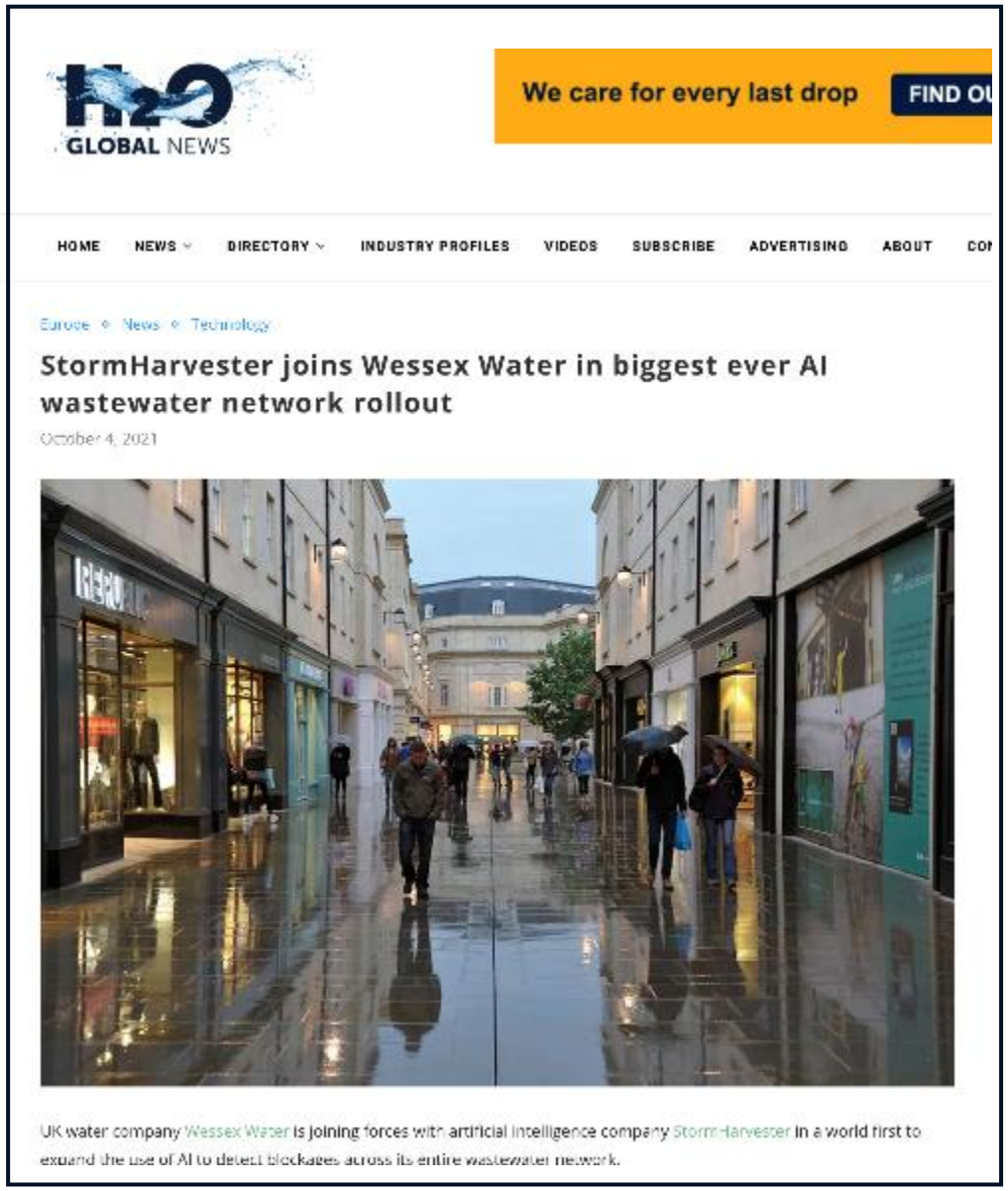
92%
ACCURACY

60
EARLY BLOCKAGE FORMATIONS IDENTIFIED

64
SENSOR FAULTS IDENTIFIED

NO BLOCKAGES OR SENSOR ANOMALIES MISSED

WESSEX WATER – FULL NETWORK ROLL OUT – 5 YEAR CONTRACT.



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StormHarvester joins Wessex Water in biggest ever AI wastewater network rollout

October 4, 2021

UK water company Wessex Water is joining forces with artificial intelligence company StormHarvester in a world first to expand the use of AI to detect blockages across its entire wastewater network.

"We set out to test the ability of machine-learning to predict blockage formations in sewer networks early and intervene before they became service failures. To better separate genuine control room alarms from alarms triggered because of high volume rainfall during wet weather and dramatically improve the response time to service failures.

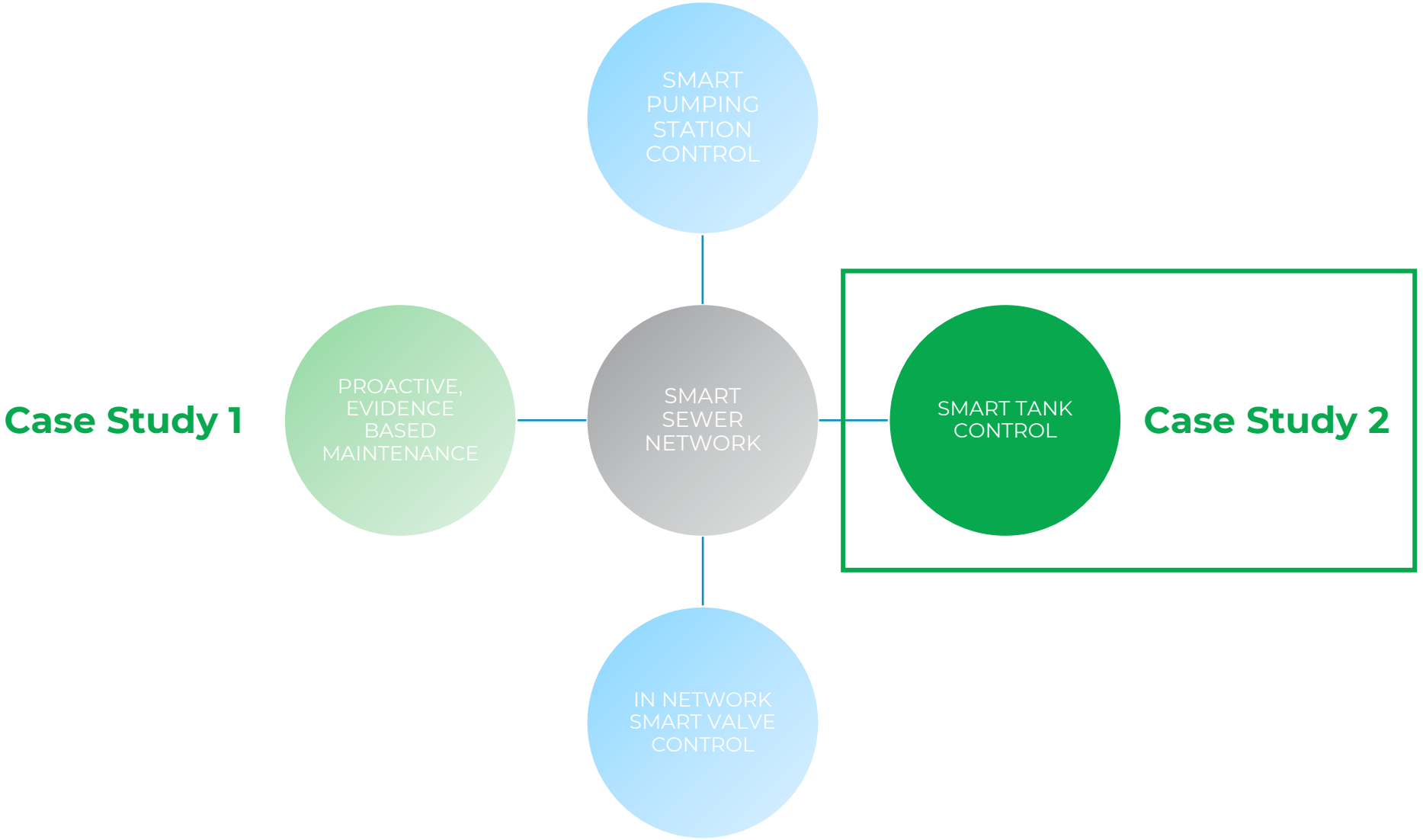
In short, the technology worked and exceeded expectations".

Jody Knight, Asset Technology Manager
Wessex Water

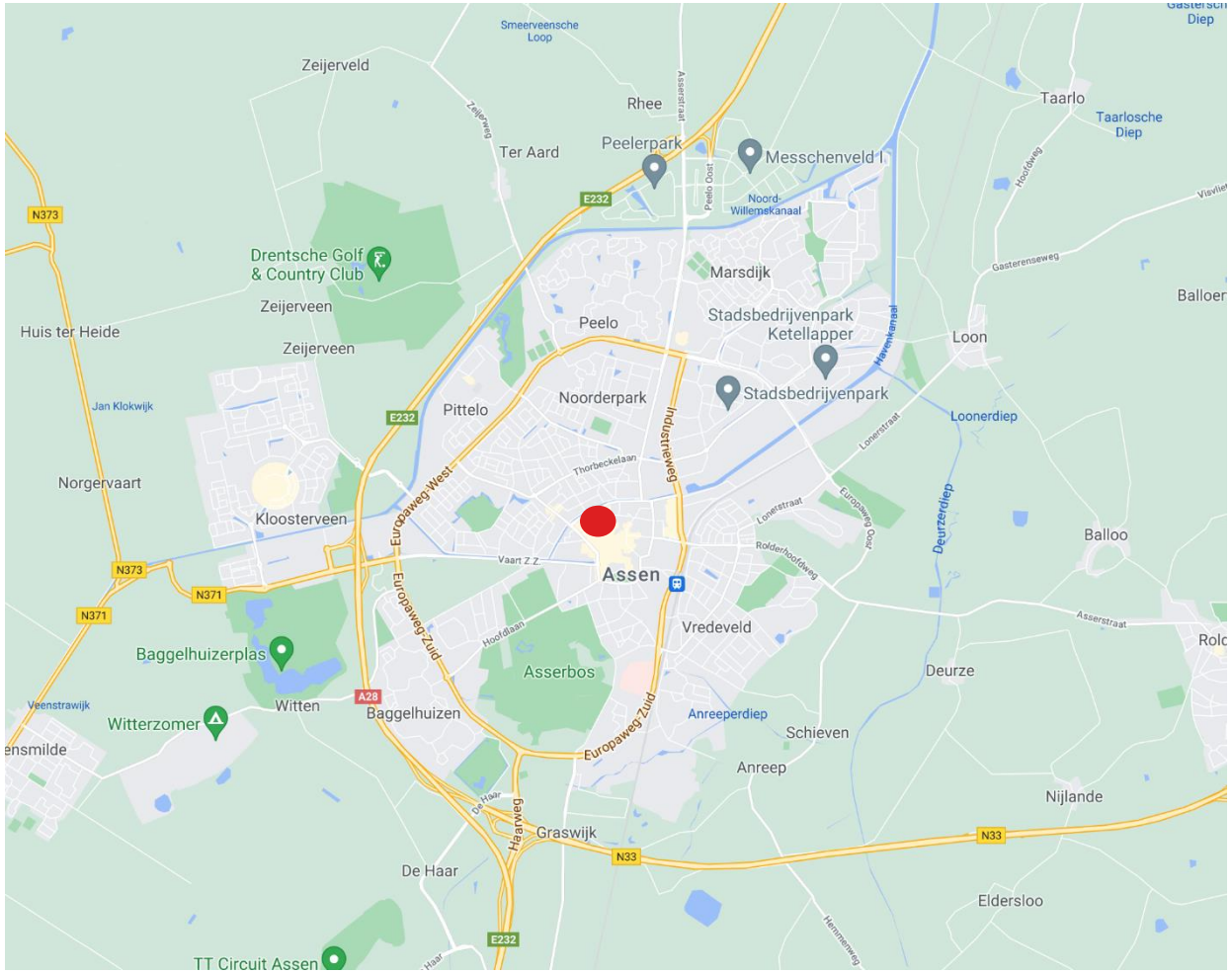
"We are really proud to be rolling out this innovative AI solution across our entire sewerage network.
It's a huge step in our ambitions to significantly reduce blockage incidents and improve efficiency in our sewerage operations."

Wessex Water YTL GROUP FOR YOU. FOR LIFE.

BIG DATA + MACHINE LEARNING FOR SMART STORM TANK ATTENUATION



CASE STUDY 2: SMART STORM TANK ATTENUATION, ASSEN & OLDENZAAL (NETHERLANDS)



BACKGROUND

- **Assen:** City of 70,000
- **Oldenzaal:** City of 35,000
- **Task:** Reduce flooding and sewer overflows
- **Approach:** Take stormwater out of the drainage system

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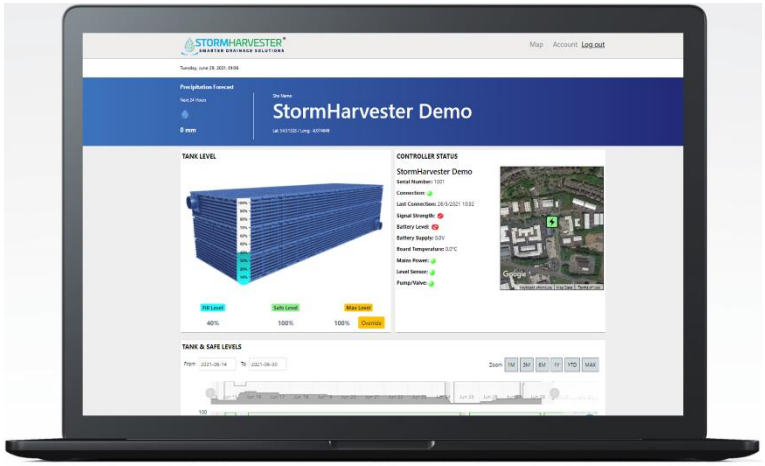

- Tank with smart valve linked to StormHarvester platform
- Tank water controlled based on upcoming rainfall runoff and level sensors
- '*Dumb*' reactive tank … turned into a '*smart*' proactive tank

CASE STUDY 2: SMART STORM TANK ATTENUATION, ASSEN & OLDENZAAL (NETHERLANDS)

BENEFITS

- '*Smart*' proactive control of storm tank allows water to be reused
  - Irrigation
  - Road sweepers
  - Sewer jetting
- Frees up capacity in the network
- Helps prevent sewer escapes
- Reduced operational carbon

Thank you

Please contact:

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