

# Young Professionals Sustainability Imbizo 2025

Transitioning to Advanced Metering Infrastructure in George Municipality

Tahseen Raiman: Senior Engineer Water Networks

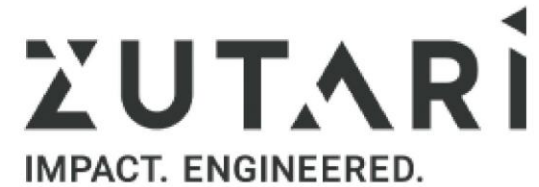
**13<sup>th</sup>** CESA  
YOUNG PROFESSIONALS  
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— 2025 —  
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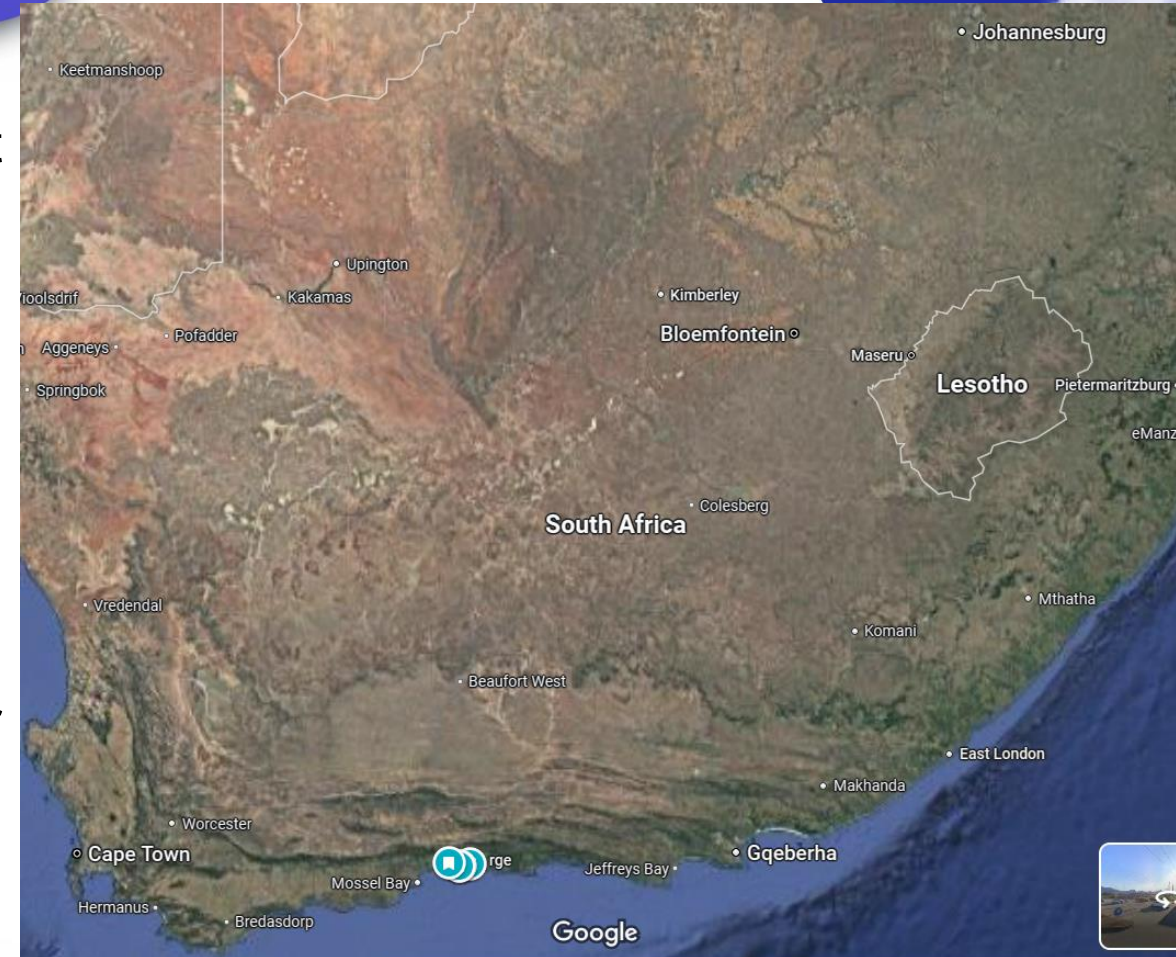


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# BACKGROUND

- George Municipality (GM) is the 2<sup>nd</sup> largest Municipality its population in the WC
  - Serves **294 929 people | 85 931 households**
  - Water networks of 1000km
- George Municipality aims to be a Water Smart City, using innovative technologies, data-driven systems, and sustainable practices to manage its water resources efficiently, equitably, and resiliently.



# Why Water Smart?

Treatment Losses, NRW, Water Losses and ILIs for the various water distribution systems							
Description	Component	Unit	23/24	Record: Prior (MI/a)			
				22/23	21/22	20/21	19/20
NRW	Volume		4 204.728	3 917.767	3 771.983	3 043.790	2 902.251
	Percentage		32.13%	30.15%	29.77%	26.69%	25.88%

- Non-Revenue Water: Billed Consumption/System Input Volume
- NRW 4204MI = 4 Gigaliters ~R 26 million!
- Deeply invested in reducing NRW
- Technical and economical drivers
- Step 1: Where is the water going?
  - Traditional/mechanical metering methods not efficient enough
  - Advanced metering is the solution



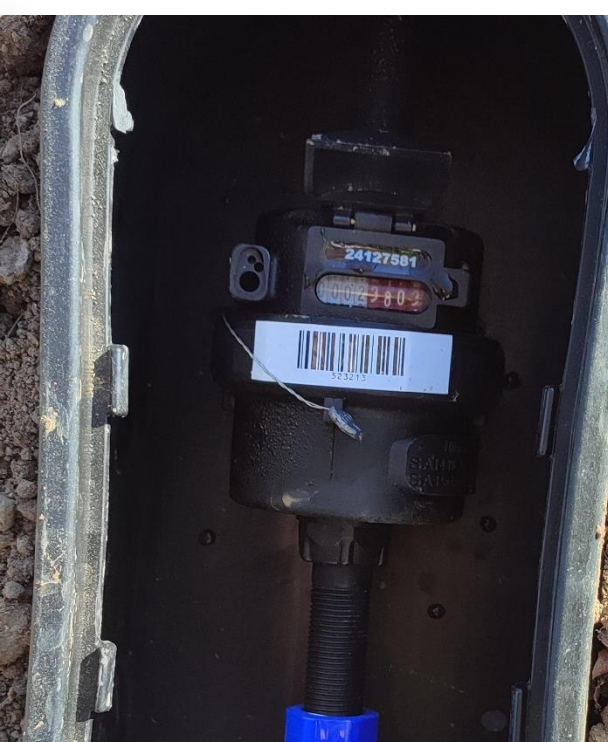
4 000 000 flow bins

# What 30% NRW looks like

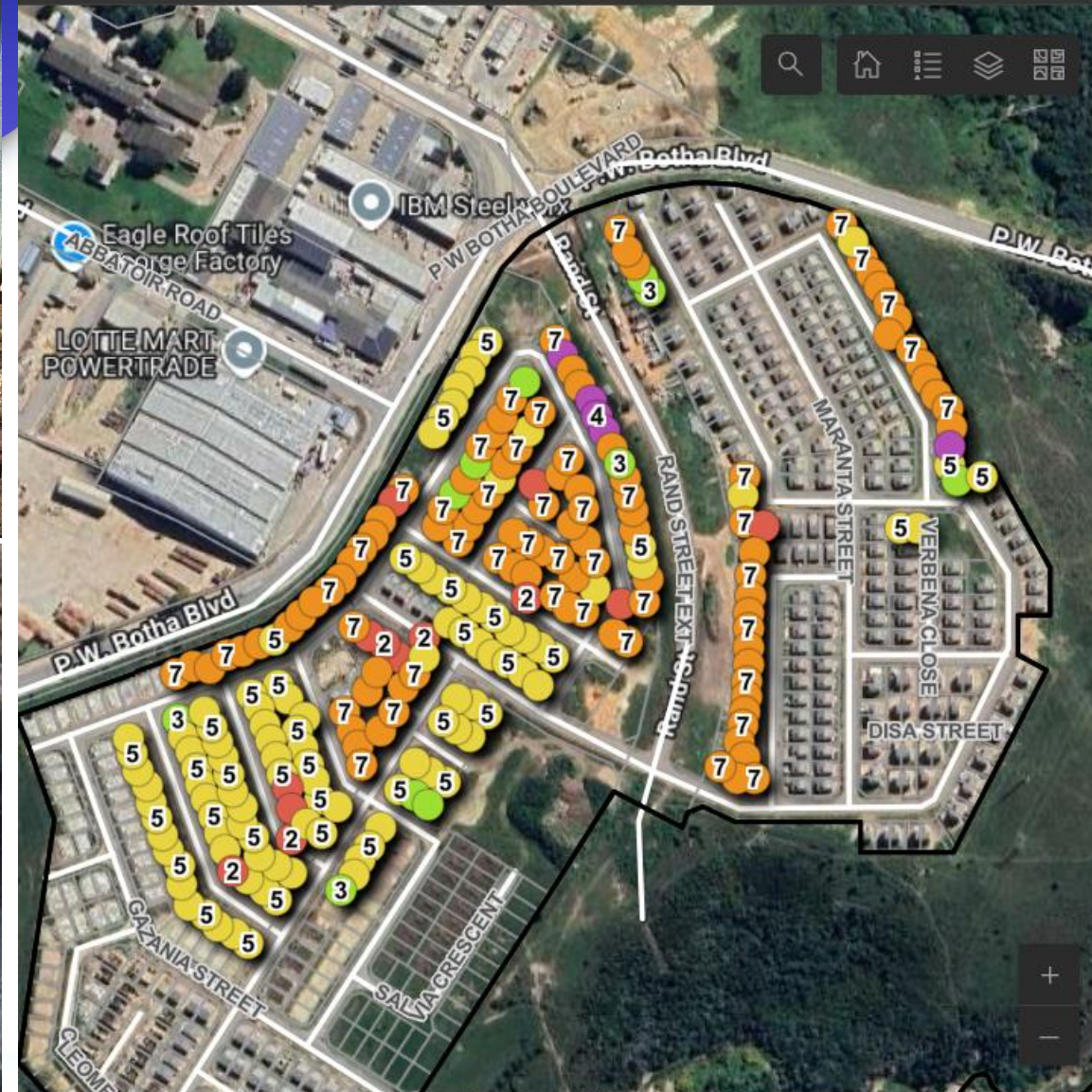


# Comparison - Zonal





Locations	Installation Date	Company Name	User Type (Status)
	No date selected	No category selected	No category selected

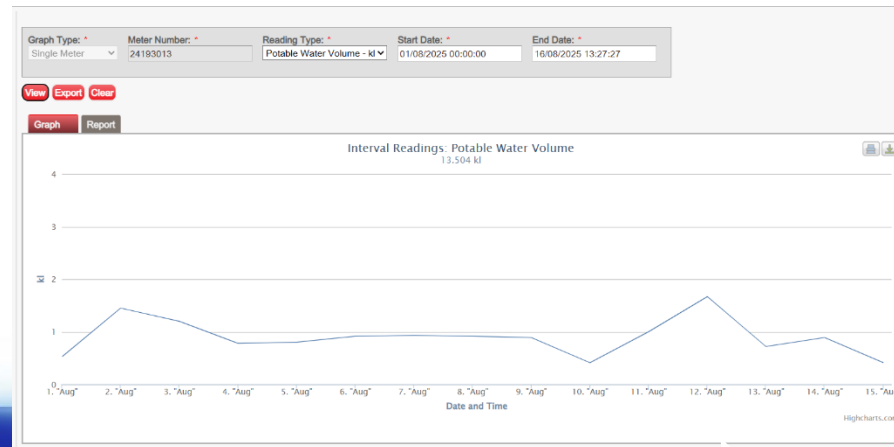
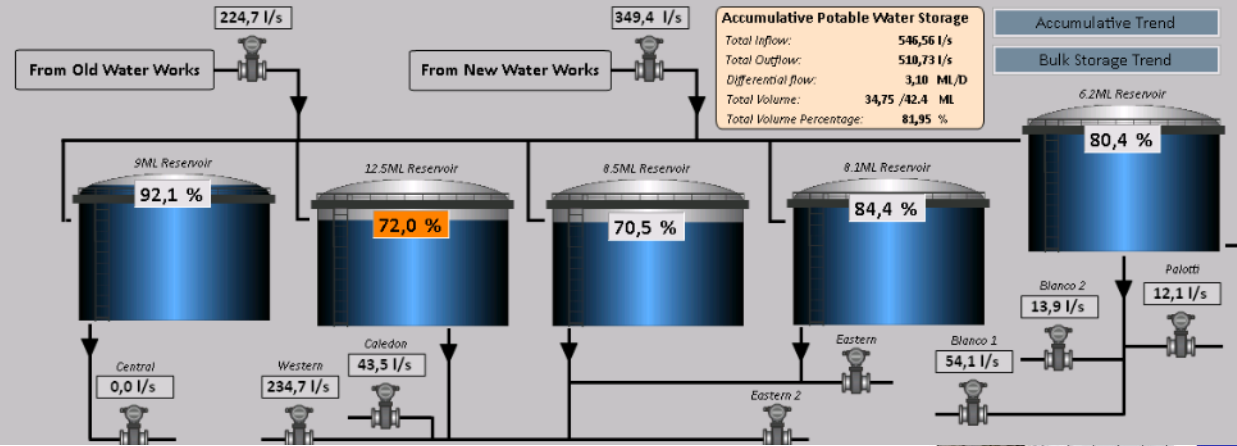


# Legs of the AMI/AMR

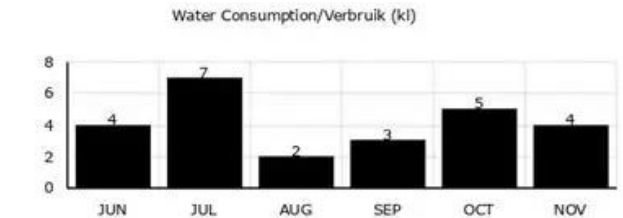
System Input Volume



## Potable Water Distribution Overview



Water:1400	Cons./Days	4	30.00		
Water:1400	Basic New	1	111.00	125.89	16.42
Water:1400	Indig New	1-	111.00	125.89-	16.42-
Water:1400	>0-6Kl New	4	19.44	89.42	11.66
Water:1400	Free New	4-	19.44	89.42-	11.66-



Billing/Water Balance

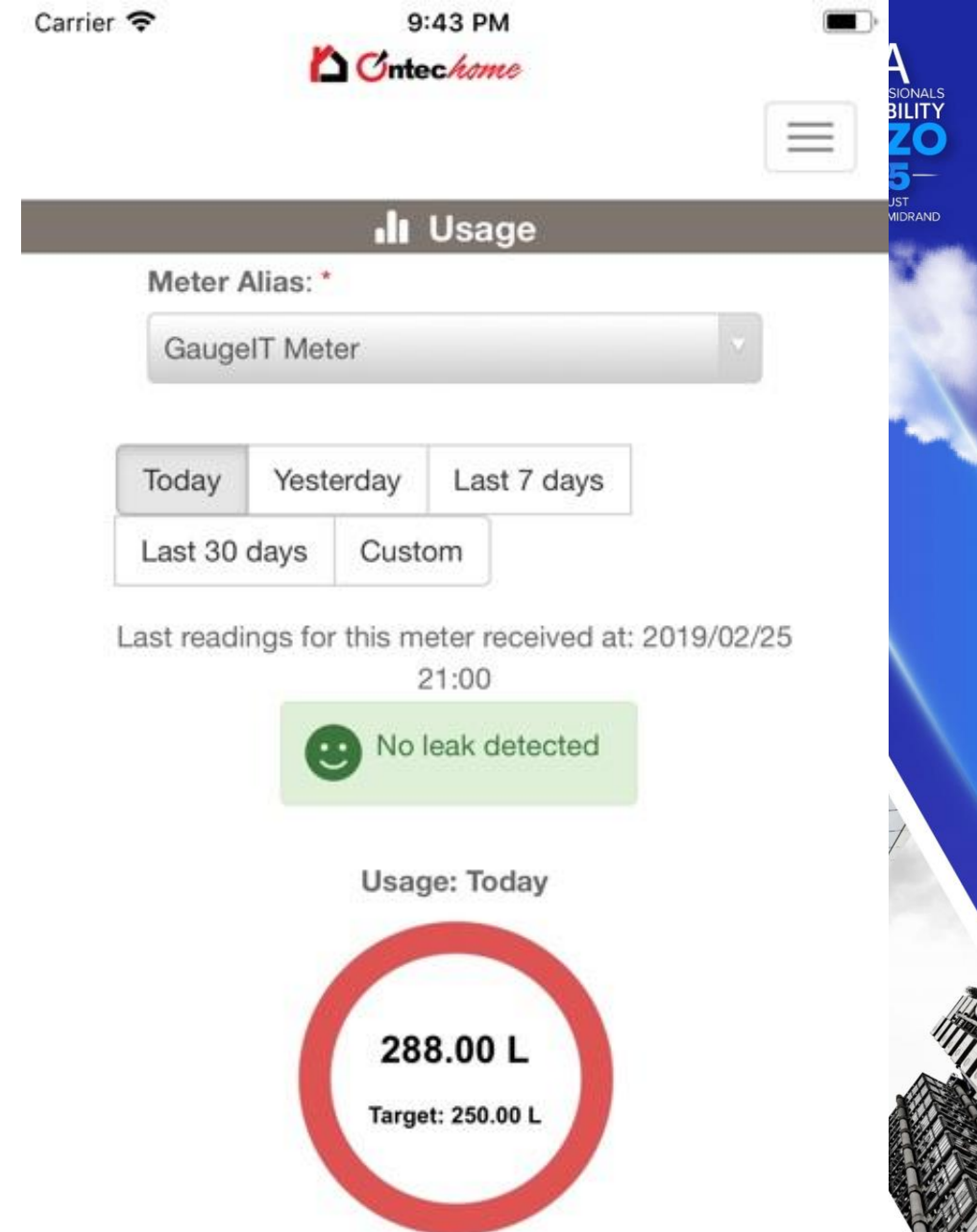
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	W	ZLD401	1688	1692		4.000	12/10-11/11-13

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# GM Status

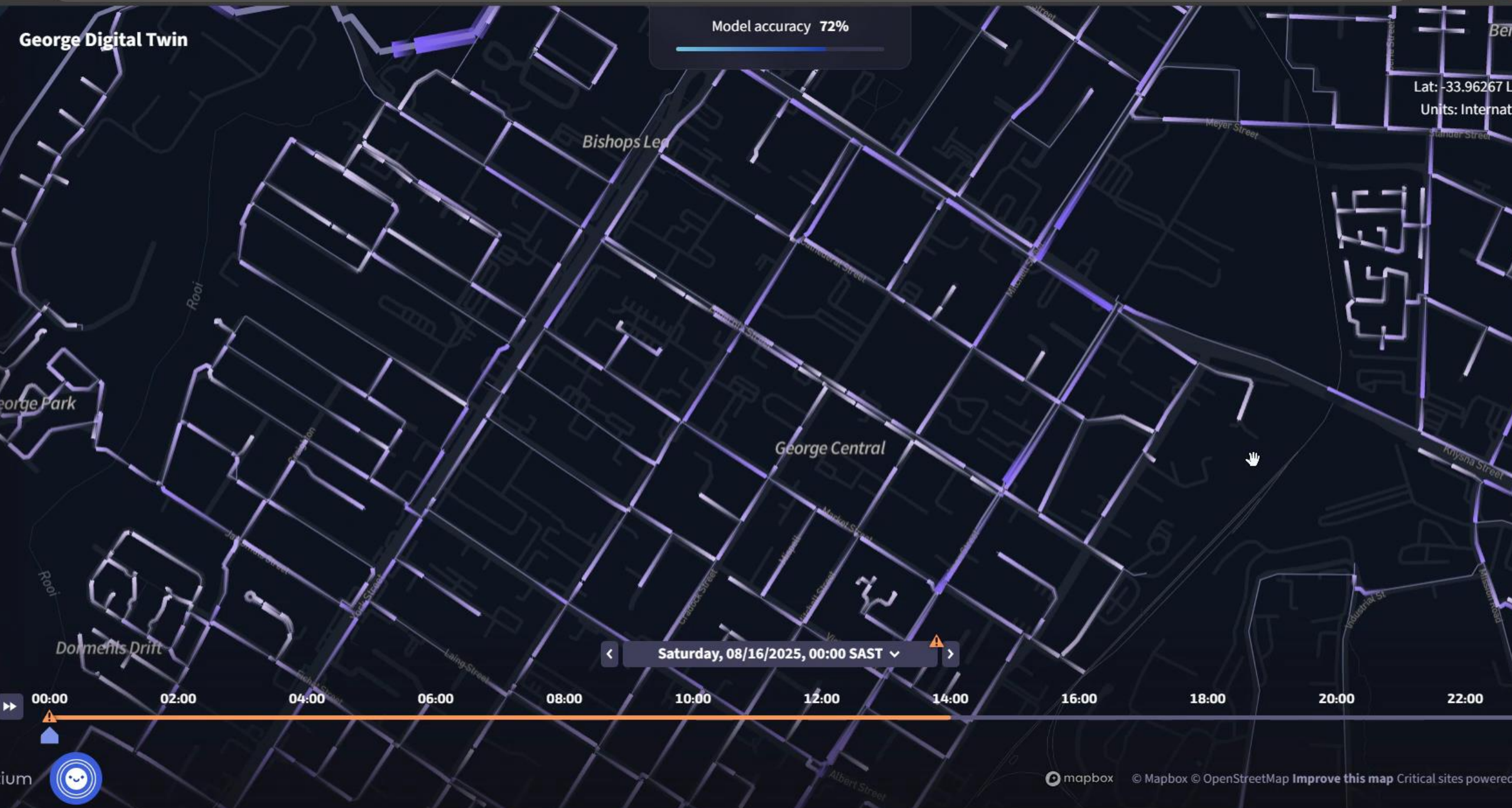
- 50% of zone/bulk meters are magnetic flow meters
- 15% of billing meters are ultrasonic meters
- Phased implementation
- Upgrades and maintenance are ongoing
- There has been a return on investment
- Homeowners are able to repair leaks faster
- Less physical water loss in the network
- Continual exploration of new technologies/systems
- Moving towards an electrical grid set up



# George Digital Twin

Model accuracy **72%**

Lat: -33.96267 L  
Units: Internat



< **Saturday, 08/16/2025, 00:00 SAST** v >

00:00 02:00 04:00 06:00 08:00 10:00 12:00 14:00 16:00 18:00 20:00 22:00

# Lessons Learned

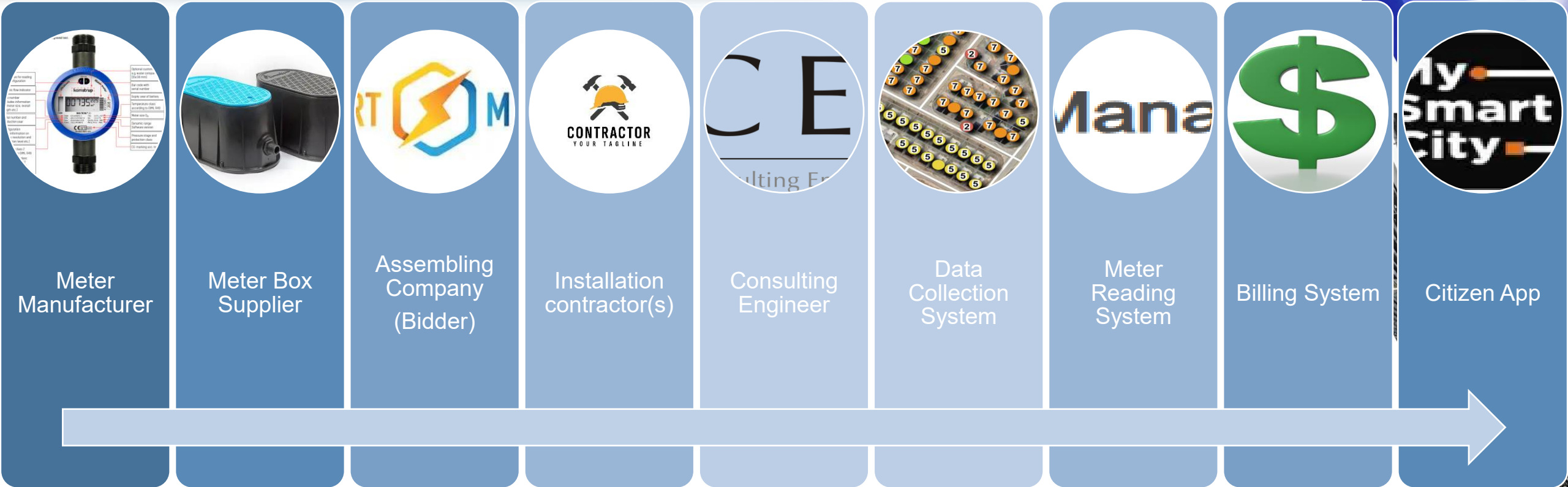
- Education and awareness of the plan is key
  - Translate complex concepts to a simple, consistent message
  - System uptake
- Test, test, test, (no leaks allowed!) before going live
- Continuous meter replacement programmes, not once off
- Accept legacy systems and adapt rapidly evolving technologies
- Pay attention to integration of physical and digital systems
- Develop a technical standard that can accommodate hybrid options
- Multiple specialities required to implement AMI/AMR



# Questions to Ask

- What problem are you trying to solve?
  - Inaccurate billing
  - Poor/no measurement of water
  - Long billing cycles or estimations
  - Tampering/vandalism
  - High operational cost/high leakage rates
- What signal, systems and data integrations are required?
- Grid tied or battery? Ping frequency?
- Need to be more than a civil engineer – physical installation is only half of the equation!
- Call experts/suppliers and shop around for solutions
- Pilot projects before adopting on a wider scale
- Can it be funded as part of a larger water pipeline replacement project?

# Contract Set Up



Consider different contract suites and procurement methods

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