

Artificial Intelligence in Urban Water Systems

9 JULY 2026

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WEBINAR INFORMATION – HOUSEKEEPING RULES



- **‘Chat’ box:** please use this for general requests and for interactive activities.
- **‘Q&A’ box:** please use this to send questions to the panelists.
(We will answer these during the discussions)

***Please Note:** Attendees’ microphones are muted. We cannot respond to ‘Raise Hand’.*

Introduction

WEBINAR 09 July 2026 14:00 BST Artificial Intelligence in Urban Water Systems



Jyoti Gautam
Department of CSE,
Sharda University, India



Dr. Bruno Brentan
Hydraulic and Water
Resources Department,
Universidade Federal
de Minas Gerais, São
Paulo, Brazil



Dr Manuel Herrera
School of Engineering,
Newcastle University
Newcastle, UK

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AGENDA

- **Introduction to the topic and Housekeeping**

Dr Jyoti Gautam, Sharda University, India

- **Digital Transformation & AI in Water Resources Management**

Dr Bruno Brentan, Universidade Federal de Minas Gerais, Brazil

- **Panel Discussion**

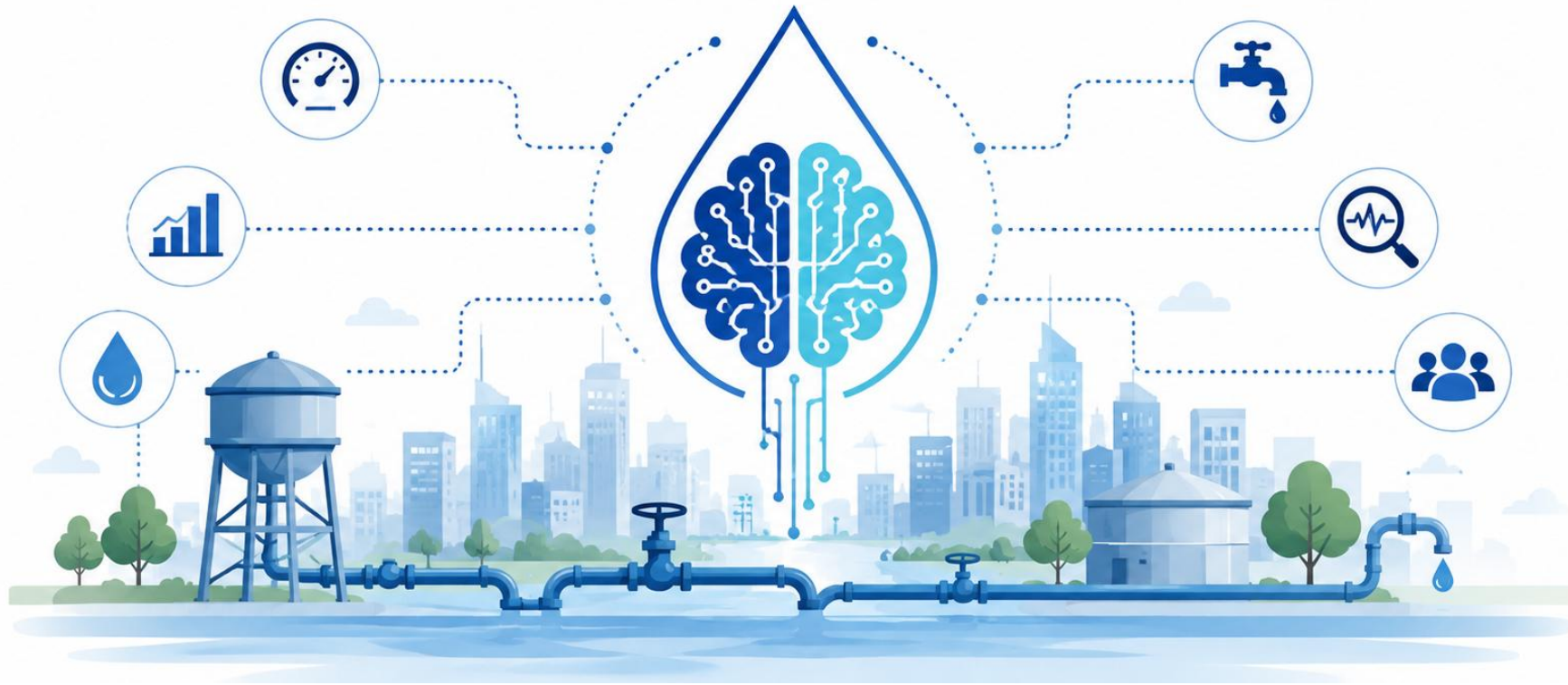
Oliver Maennicke, Founding Advisor, Global Advisory Alliance

Manuel Herrera, Newcastle University, UK

- **Closing remarks**

Dr Jyoti Gautam, Sharda University, India

Artificial Intelligence in Urban Water Systems



The Planetary Stake: A Resource Under Unprecedented Stress

40%+

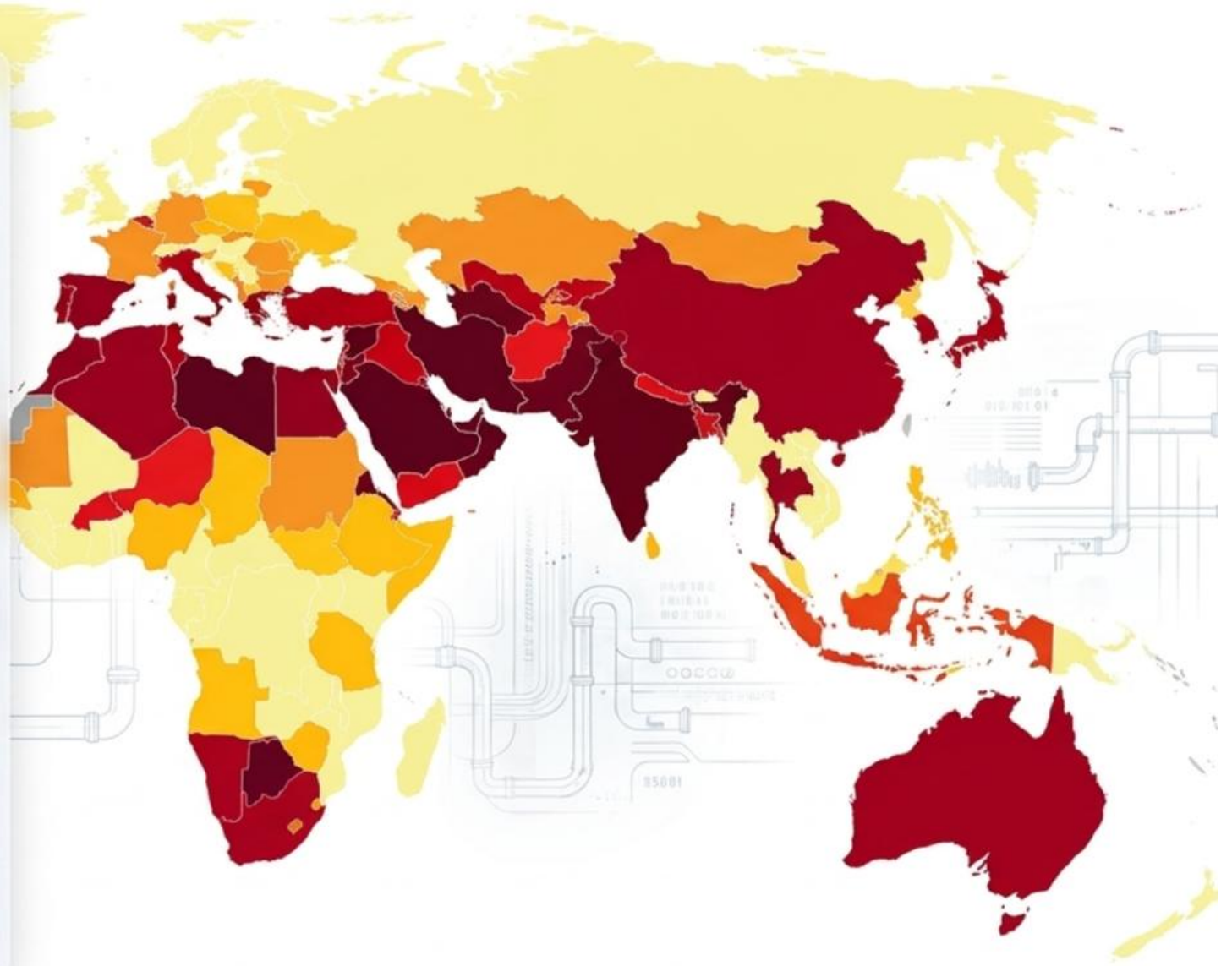
Global population currently facing severe water scarcity.

2.2 Billion

People globally lacking safely managed drinking water services.

Core Drivers

-  Climate change precipitation shifts
-  Watershed degradation
-  Groundwater depletion



Challenges and Opportunities



Water Distribution Systems

Infrastructure

Pipe, valves, pumps, connecting users

Dynamic guided by consumers and limited by available pressure.

Computationally modelled as a set of nodes (consumers) connected by links.



Failures

Mainly related to pipe disconnection or breaks.

From small leaks to complete disruption of service.

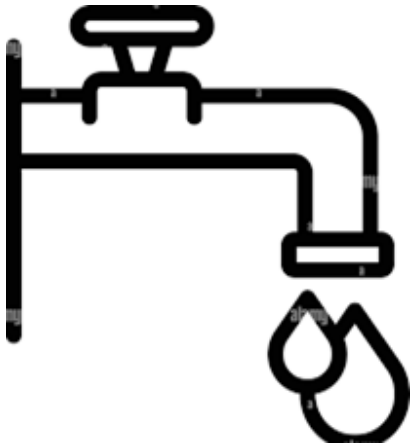
Possibility of biological/chemical intrusions



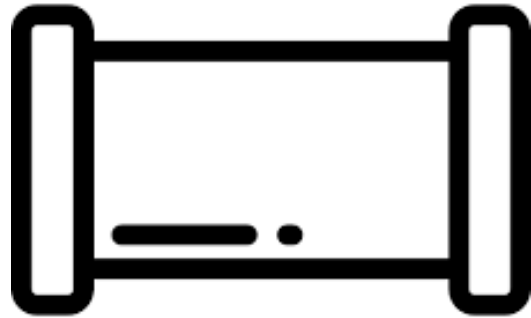
Classical modelling and challenges

Why metamodeling is suitable for a set of applications?

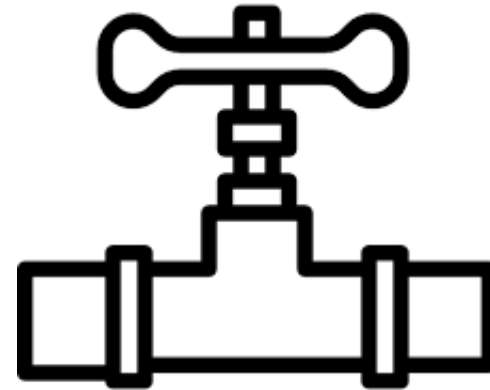
- **Uncertainties of hydraulic models**



Water Demand
Others



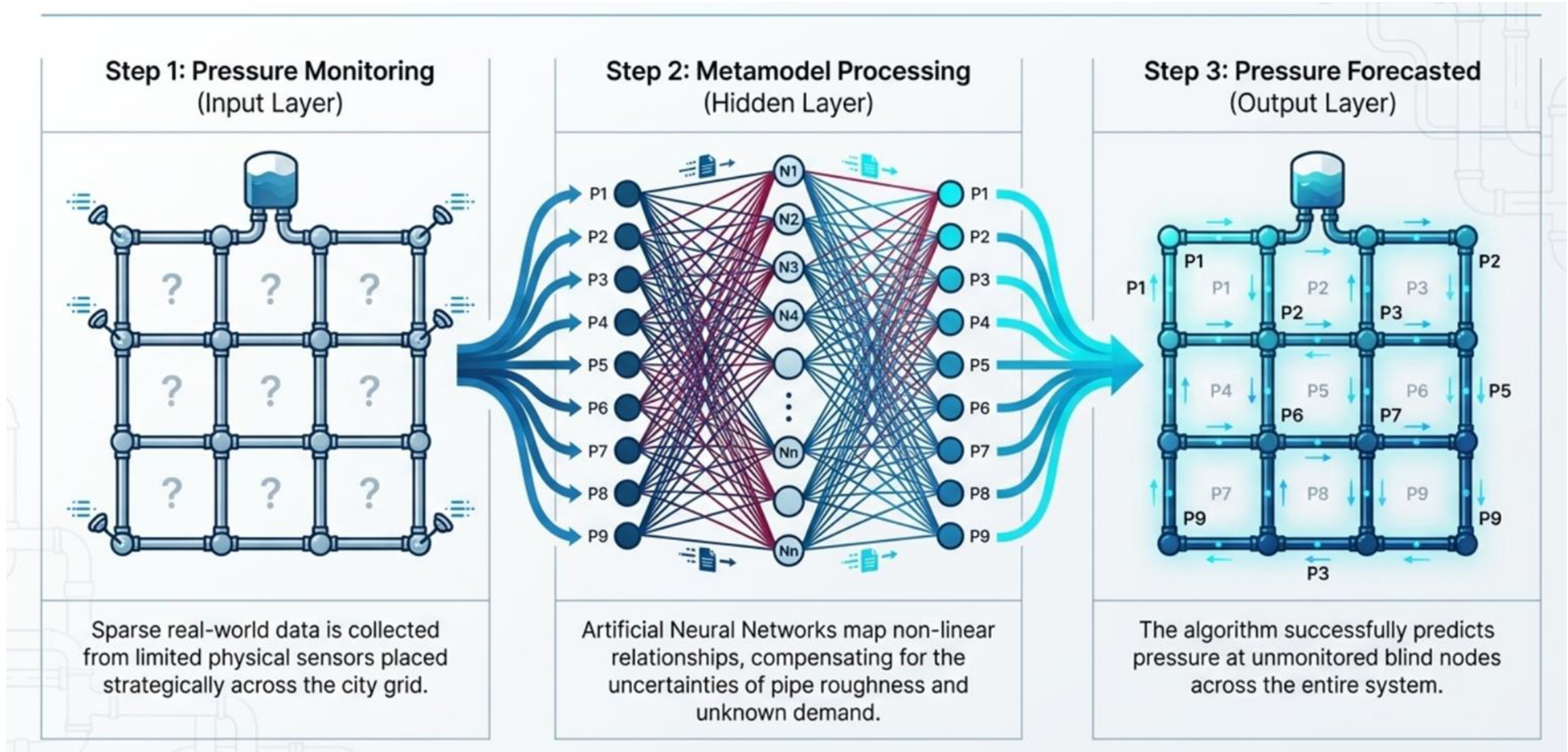
Pipe Roughness



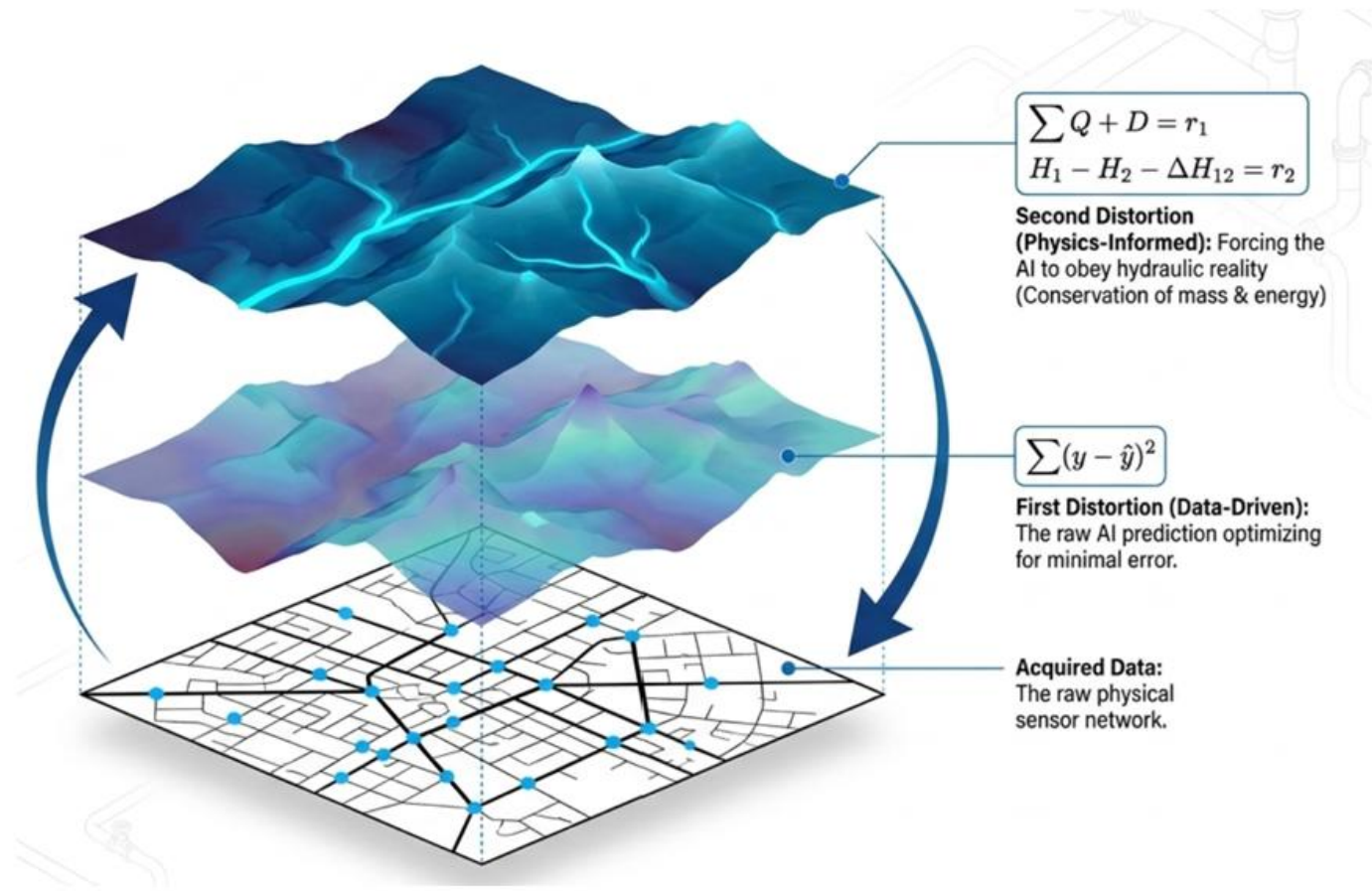
Operational rules



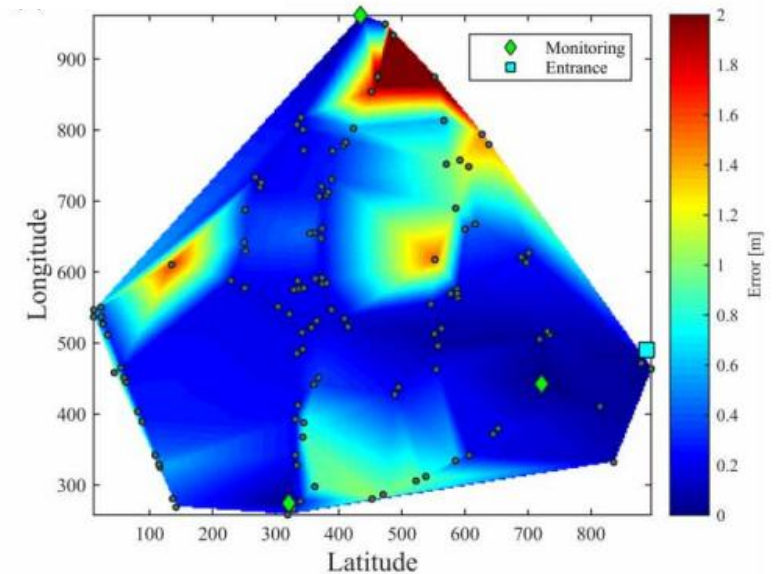
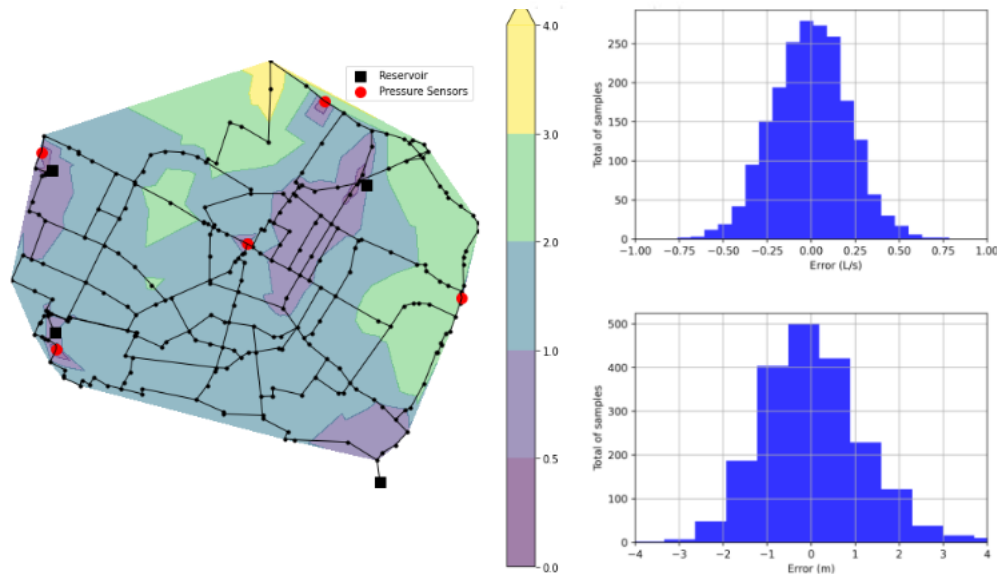
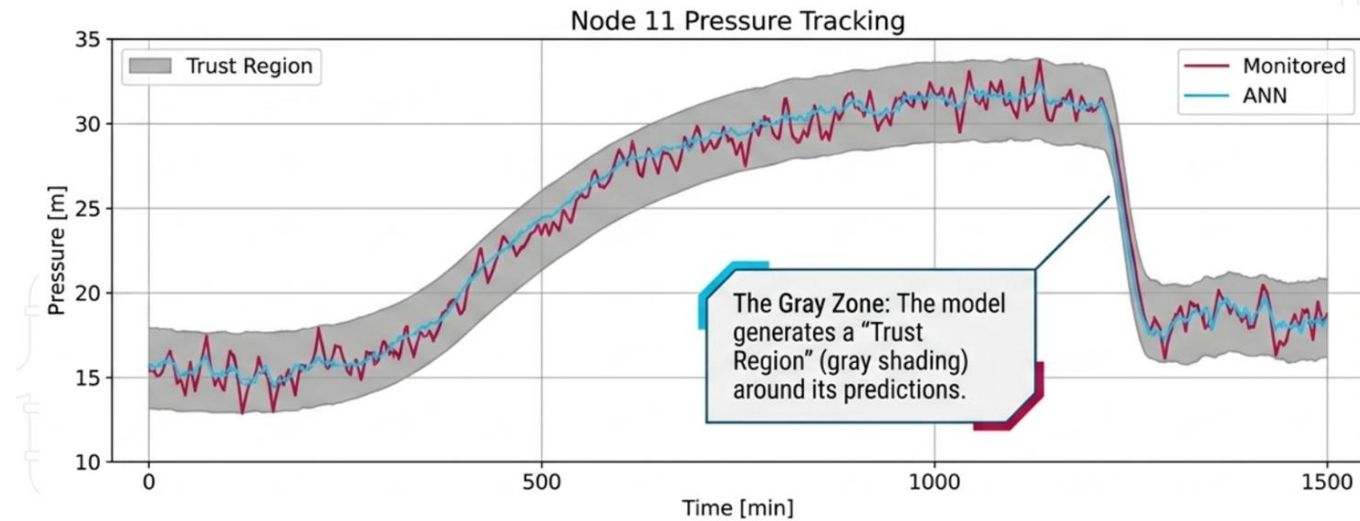
From classical modelling to Dig. Twin



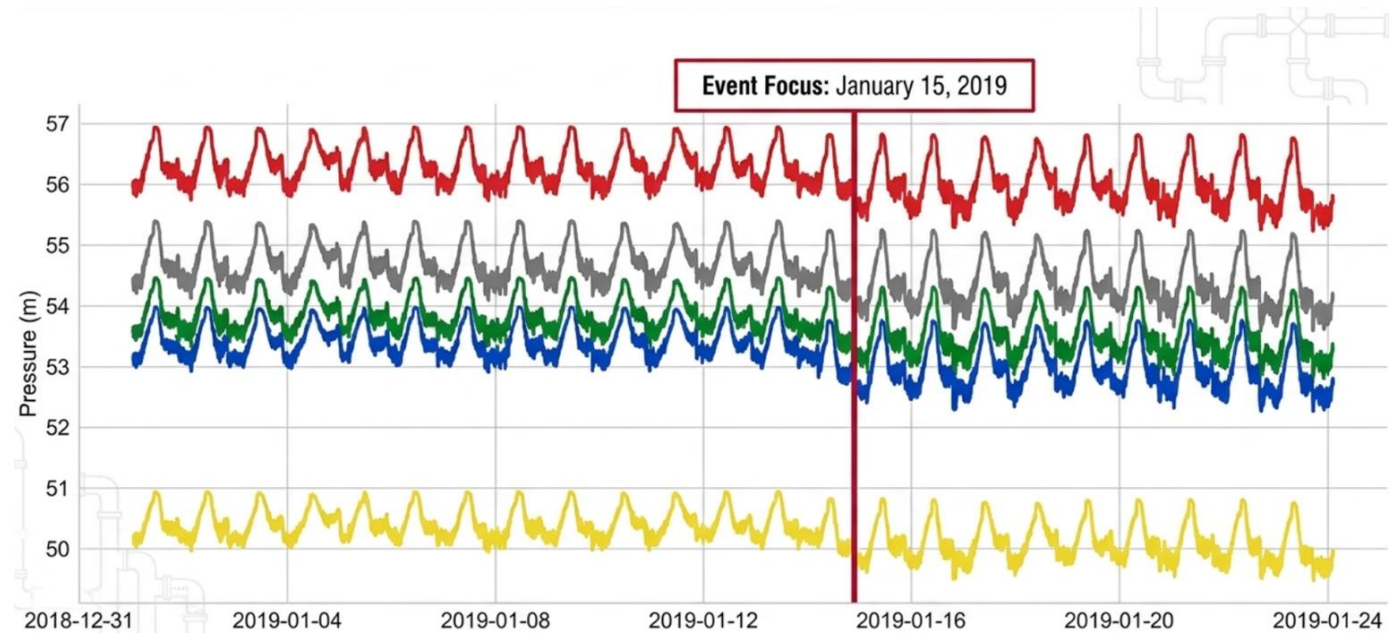
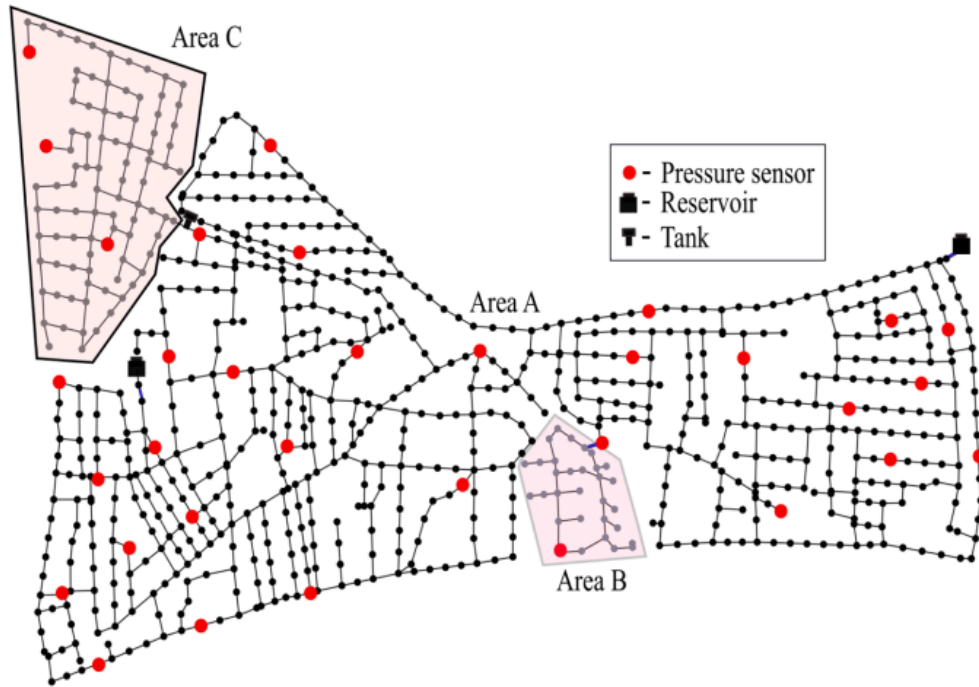
From classical models to metamodeling



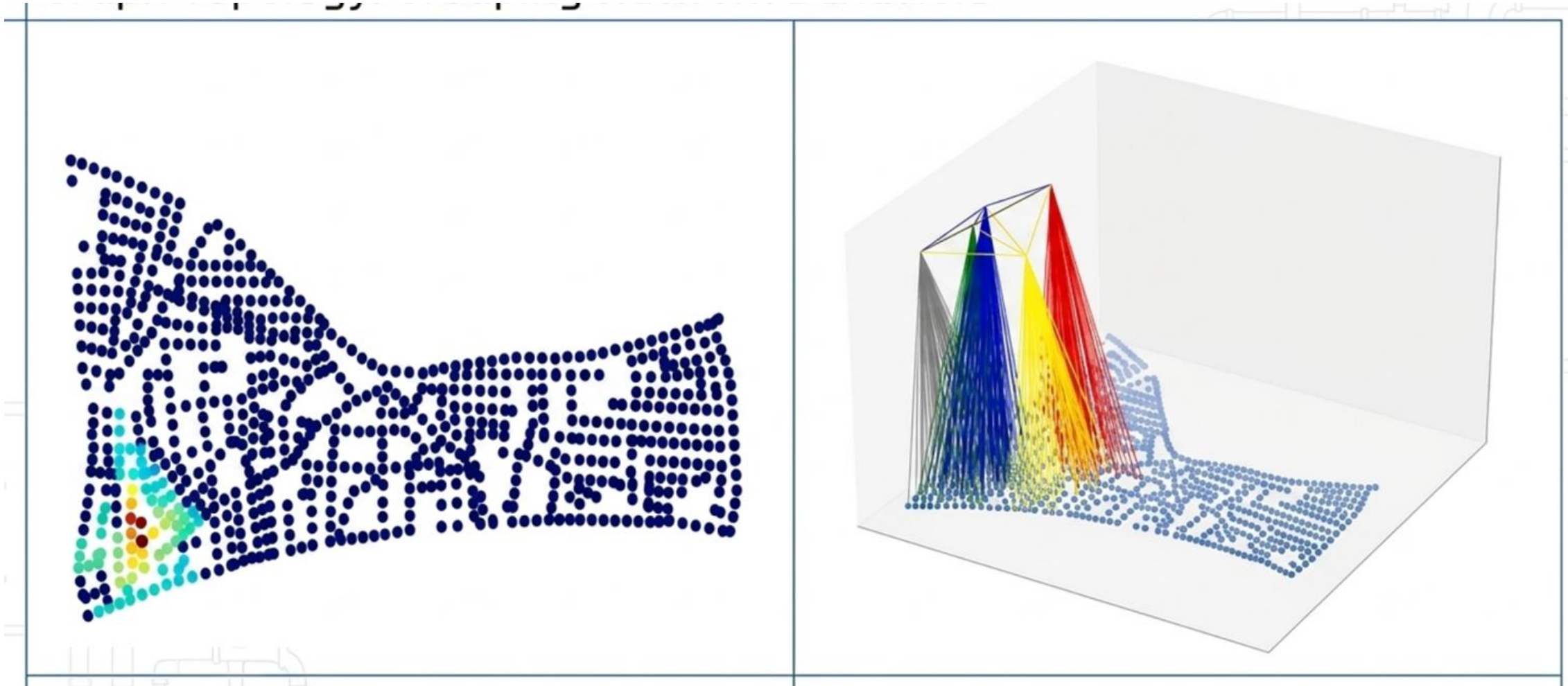
From classical models to metamodeling

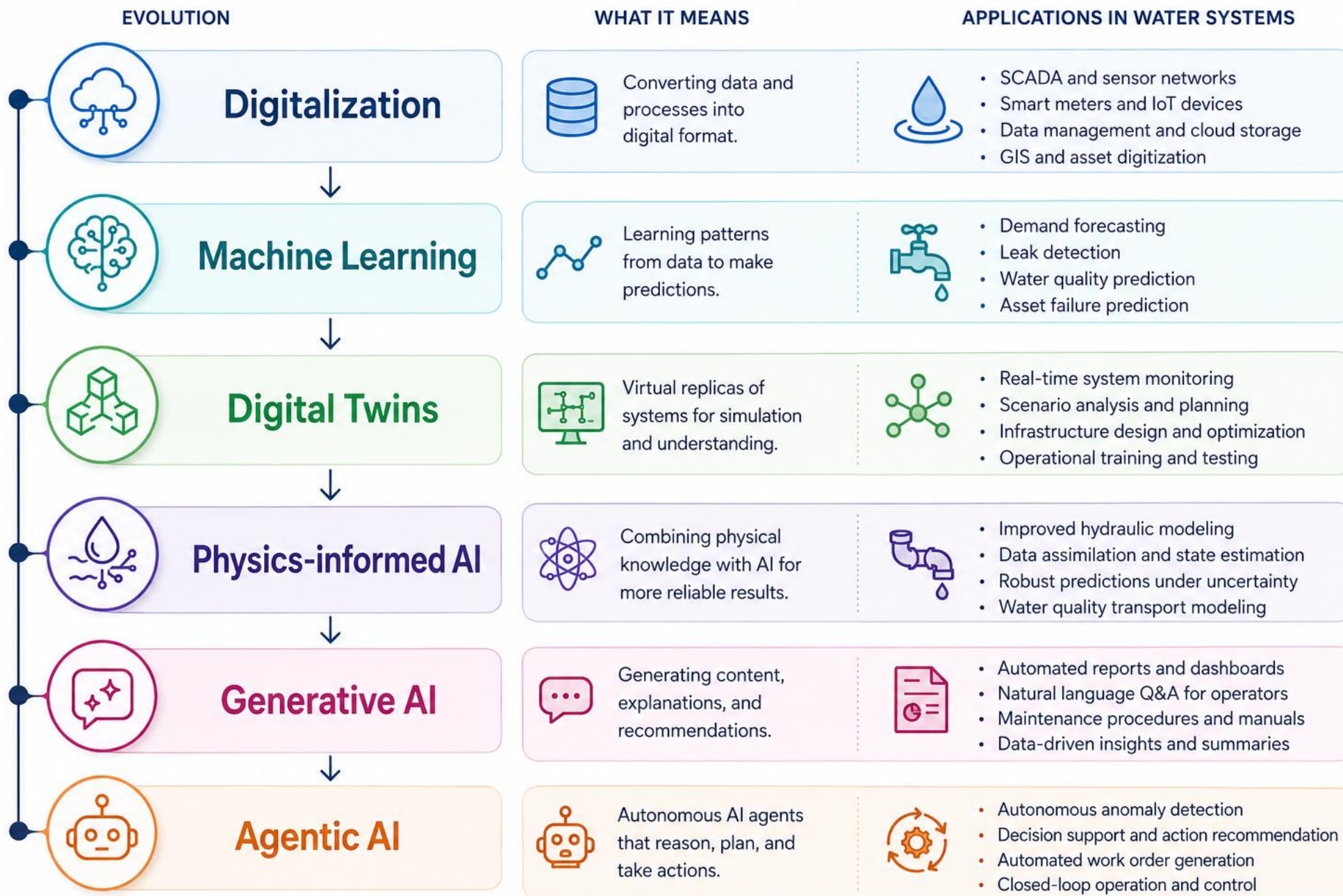


Identifying and localizing anomalies



Identifying and localizing anomalies





Can an AI operator manage a system?

	Physics-informed AI	✓
	Digital Twins	✓
	Explainable AI	✓
	Generative AI	✓
	Agentic AI	→ Next frontier





INSTAGRAM

Thank you!



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