DATAWEEK
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PathoCERT

PathoCERT: A water data information ecosystem for first responders to manage pathogen contamination emergencies

Dr Demetrios Eliades

Research Assistant Professor
KIOS Research and Innovation Center of Excellence
University of Cyprus

Dr Eloisa Vargiu

Senior Researcher / Public funding programmes specialist
CETaqua, Water Technology Center

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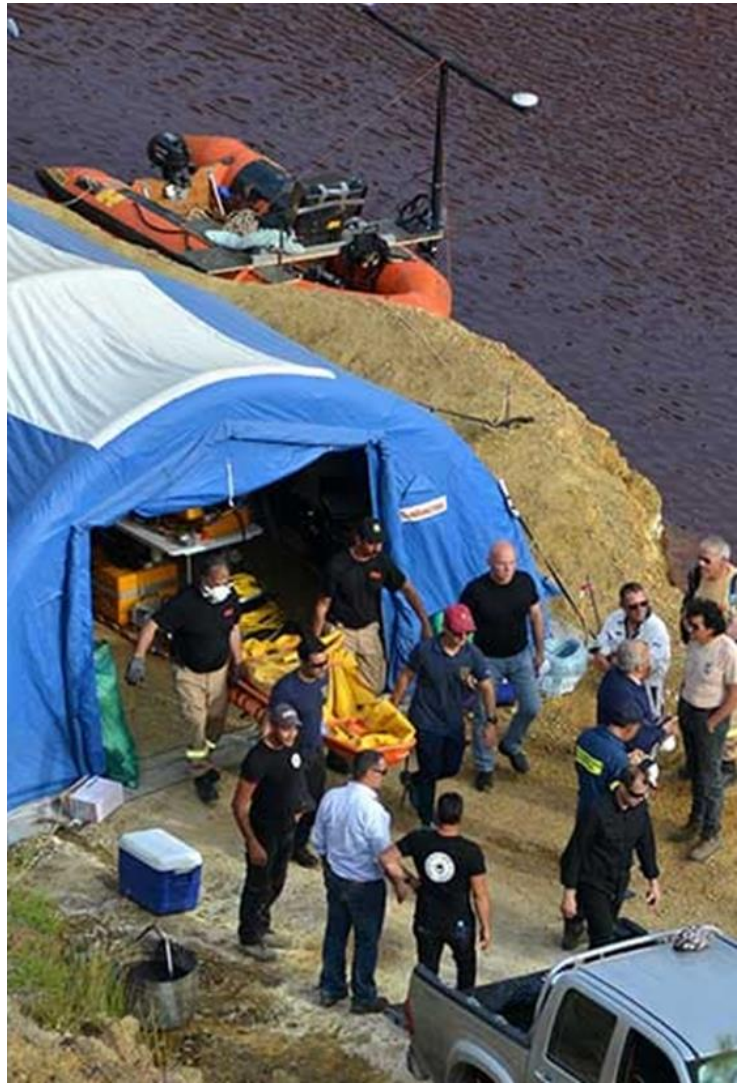
Outline of this presentation

- How did data sharing between authorities evolved during the past decades?
- How to design a water contamination emergency management data space?



Evolution of data sharing

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1980's – Organization-owned infrastructure

Water Authorities

Sensors → Private Network → Local Data Storage → Local Data Analysis

First responders

Sensors & Field Communication → Private Network → Local Data Storage → Local Data Analysis

Evolution of data sharing

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1990's – External telecommunication services

Water Authorities

Sensors → Telecommunication Network → Local Data Storage → Local Data Analysis

First responders

Sensors & Field Communication → Telecommunication Network → Local Data Storage → Local Data Analysis

Evolution of data sharing

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2000's & 2010's – Cloud storage and web applications

Water Authorities

Sensors → Telecommunication Network → Cloud data storage & web apps → Local Data Analysis

First responders

Sensors & Field Communication → Telecommunication Network → Cloud data storage & web apps → Local Data Analysis

Future of data sharing

Water Authorities

Sensors

Telecommu nication Network

Cloud data storage & web apps

Gateway

External Services

Emergency Data Space

First responders

Sensors & Field Communic ation

Telecommu nication Network

Cloud data storage & web apps

Gateway

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Case Study: H2020 PathoCERT

British Columbia

Entire city of Merritt, B.C., ordered to evacuate after flooding of wastewater treatment plant

Population of 7,000 ordered to leave after flood waters from continuing rainstorm overwhelm city

Karin Larsen · CBC News · Posted: Nov 15, 2021 10:18 AM PT | Last Updated: November 16, 2021

UK floods: Buckskin sewage contamination continues

19 February 2014

Thames Water said it is not responsible for ground water but added it was working "flat out" to maintain sewers

More homes on a housing estate in Basingstoke could be evacuated as sewage continues to contaminate flood water.

Ground water began to overwhelm the drainage system in Buckskin almost two weeks ago.

Did you wade in Texas floodwaters? You could be infected

Julie Garcia, Staff writer

Updated: Sep. 20, 2019 9:41 p.m.

Broken pipes meant raw sewage water entered the Pedieos river

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Southern Water fined record £90m for dumping raw sewage

2 days ago

Around 50 towns and villages left without water owing to pollution of Maritsa river

Two charged over contamination of tap water

03/12/2018

Police have charged two employees of Prague Waterworks with endangering public health through negligence in connection with contaminated tap water supplied to the Dejvice and Bubeneč districts of Prague in 2015.

Over 4,000 people suffered health problems as a result, 33 of them had to be hospitalized. Hygiene officers ordered a blanket vaccination of children under 15 against Hepatitis A.

After the fire: Blazes pose hidden threat to the West's drinking water

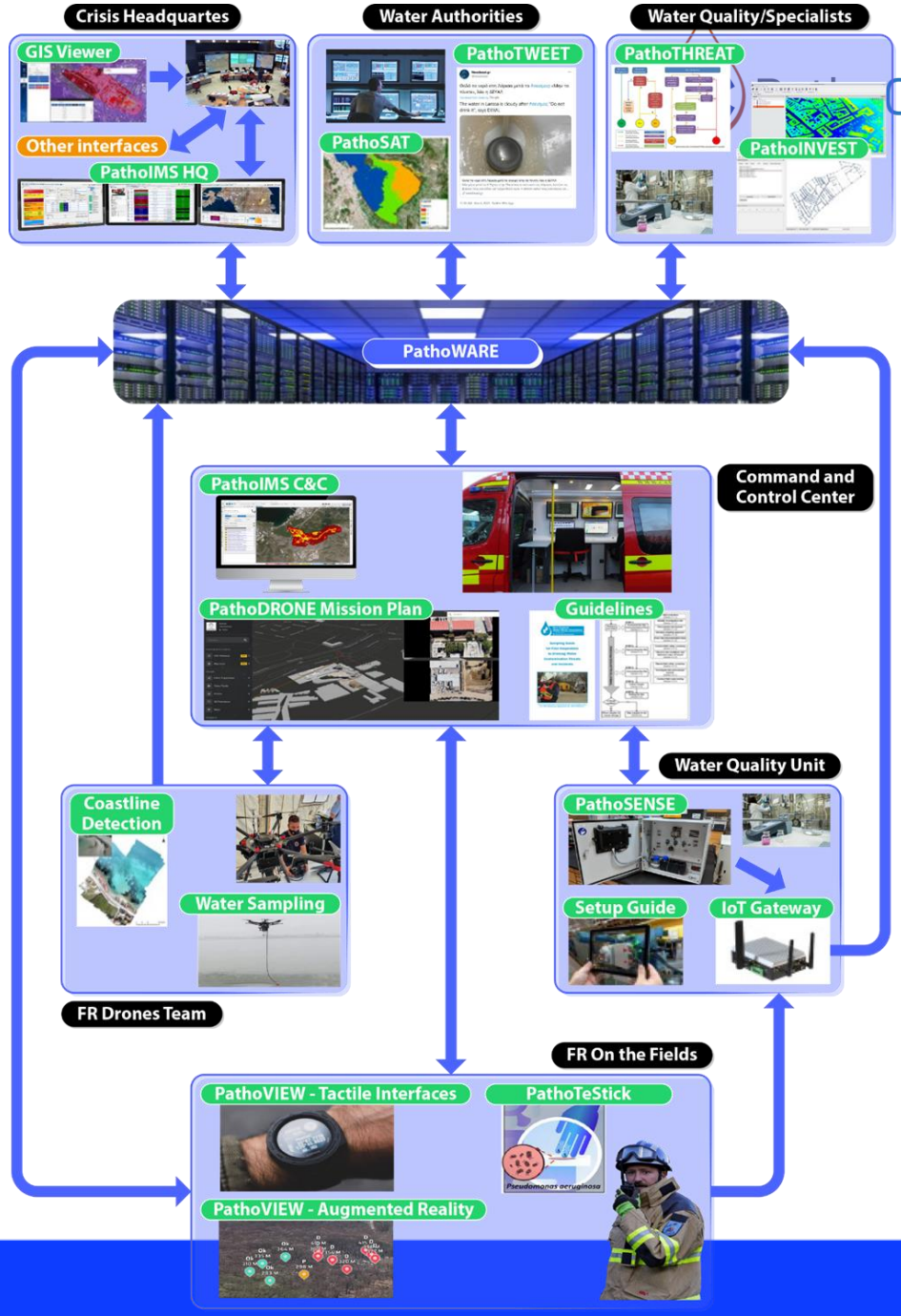
At least 65 percent of the public water supply in the Western U.S. comes from fire-prone areas, and wildfires can taint water with toxins and parasites.

During waterborne contamination emergency events, information needs to be communicated between different stakeholders:

- Water authorities
- First responders
- Local authorities
- Experts

PathoCERT Data Challenge

- How to collect data from many different sources?
- How to store them in an easily retrievable way?
- How to give access to different application services, offered by many different organizations in Europe?



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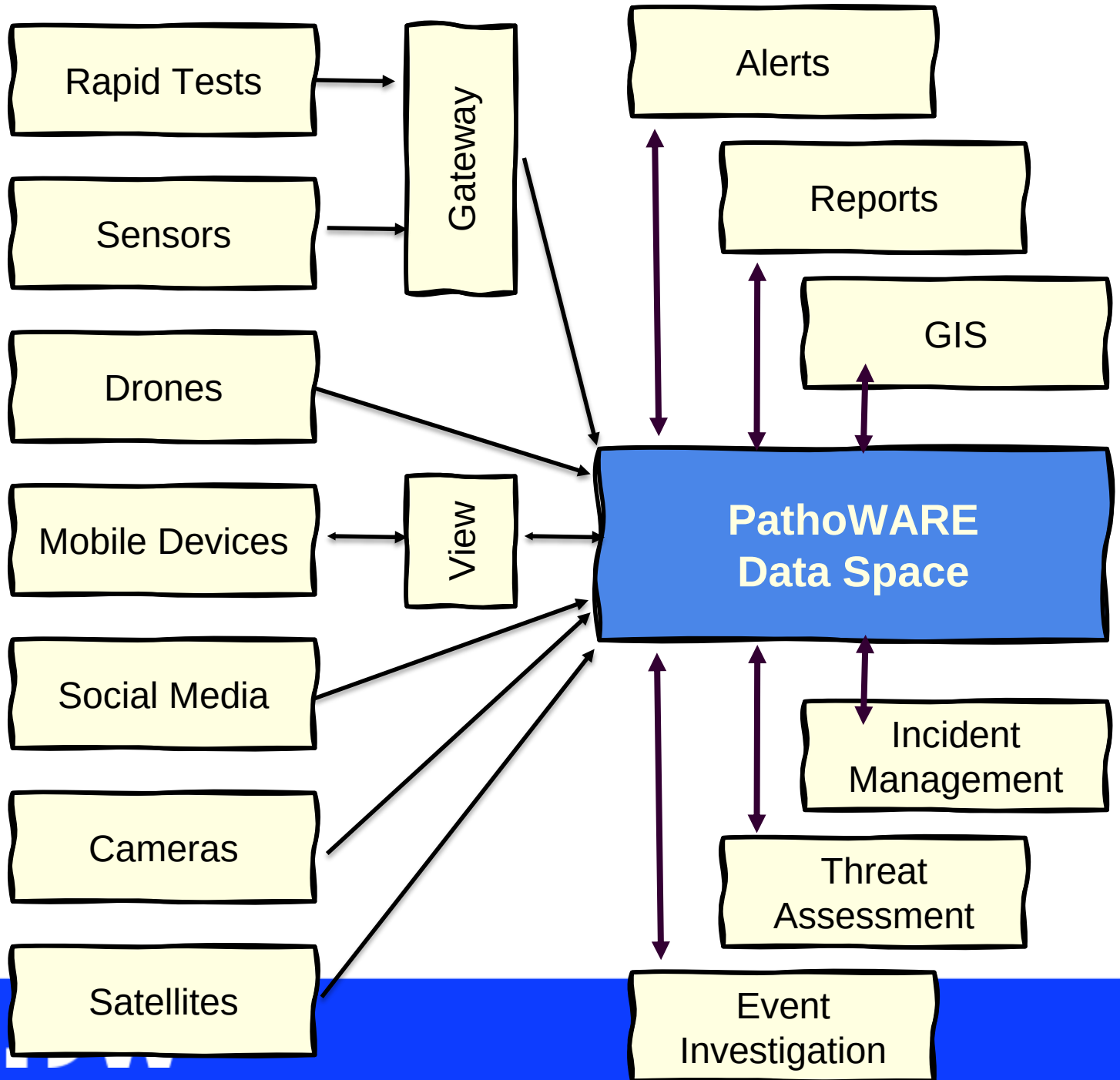
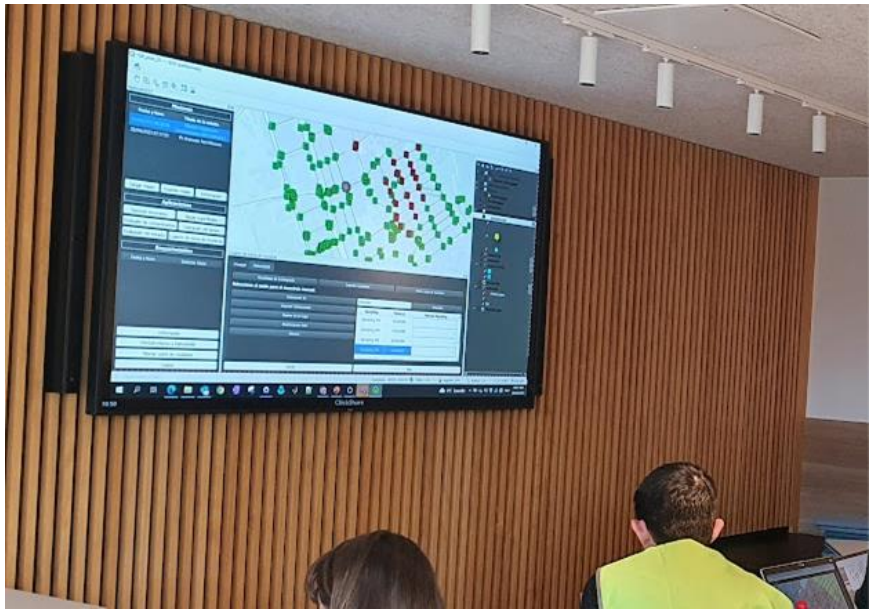

Rapid Tests
Sensors
Drones
Mobile Devices
Social Media
Cameras
Satellites
Gateway
View
Alerts
Reports
GIS
PathoWARE
Data Space
Incident
Management
Threat
Assessment
Event
Investigation



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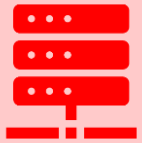
Take-home message



Data sharing is critical for efficient emergency contamination response management

Interoperability between sensors from different suppliers, as well as tools, need to guaranteed

PathoCERT pilot is highlighting the need of Data Spaces for Emergency Situations