Technology Applied to Emergency Response

Exploring the Role of Technology in Every Stage of Emergency Management

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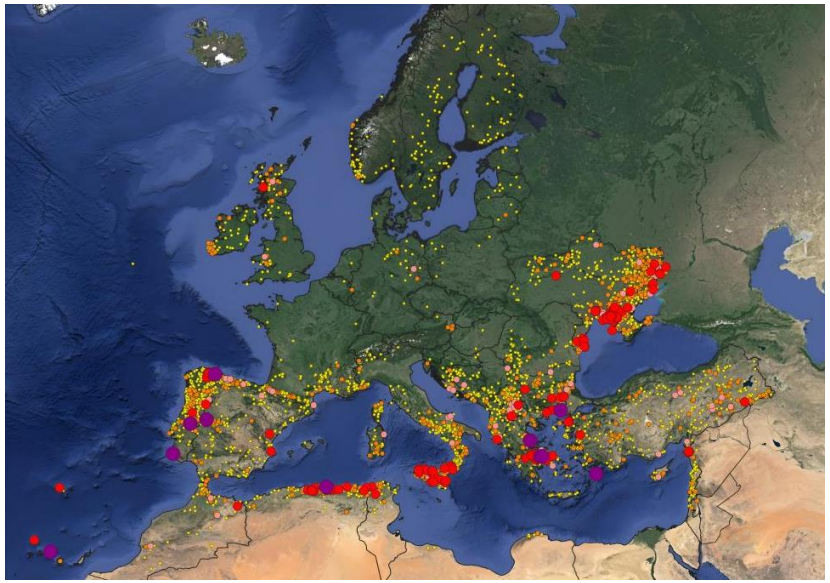
Agenda

- Introduction
- Stages During an Incident
- Technology Applied at Each Stage
- Future Trends
- Q&A

Introduction



Source: EU Science Hub

2023, 504,000 ha burnt in the EU

Urgent need for faster, smarter and safer emergency response

Stages During an Incident

Detection

- Identification of active incident
- Wildfires can double in size every 10-20 minutes ⟶ early detection means faster contention

Challenges Faced

- Incidents in remote & difficult to monitor areas
- Rapid fire spread and unpredictability
- False positives

Technology Deployed

- Satelites – Copernicus EU
- Camera & sensor deployments
- AI preventive & predictive systems

Tech Example - Alert California

- State focused program
- Manages over 1080 cameras & sensors
- Deployed an AI platform for smoke detection

Source: Alert California

Assessment & Mobilization

- Evaluation of fire size, location, weather conditions and potential threats to people, property & national resources
- Firefighting resources dispatched to the scene to contain and control the incident

Challenges Faced

- Correct Resource Allocation
- Incomplete or contradictory data
- No Access to real time site specific information

Technology Deployed

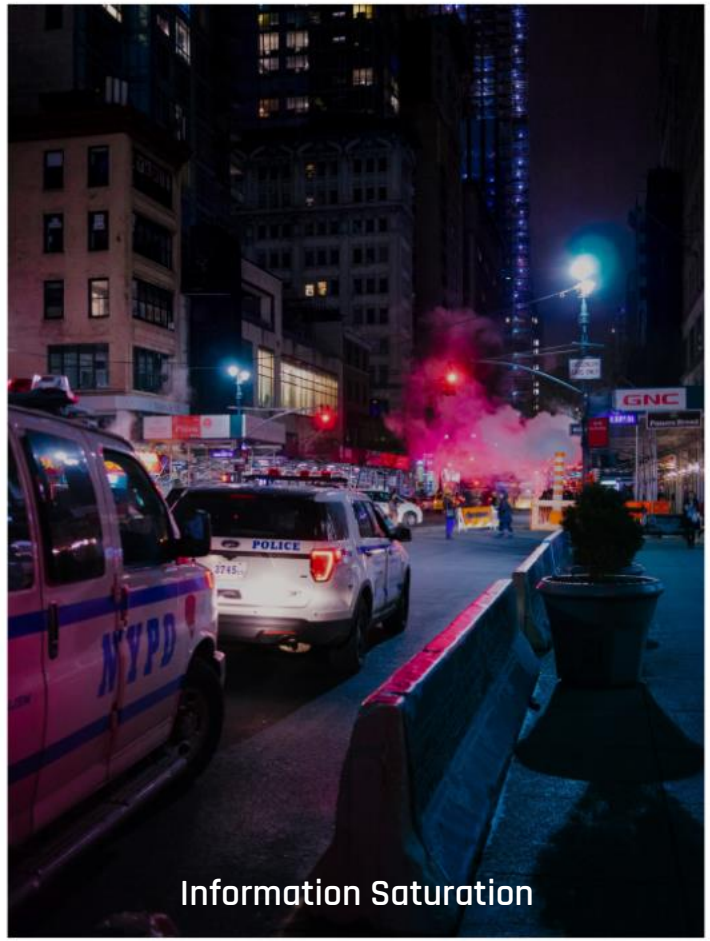
- Geographical Information Systems
- Drones
- Mobilization systems

Tech Deep Dive- Mobilization systems

- Automated dispatch and resource allocation
- Resource tracking
- Access to GIS layers for initial assessment

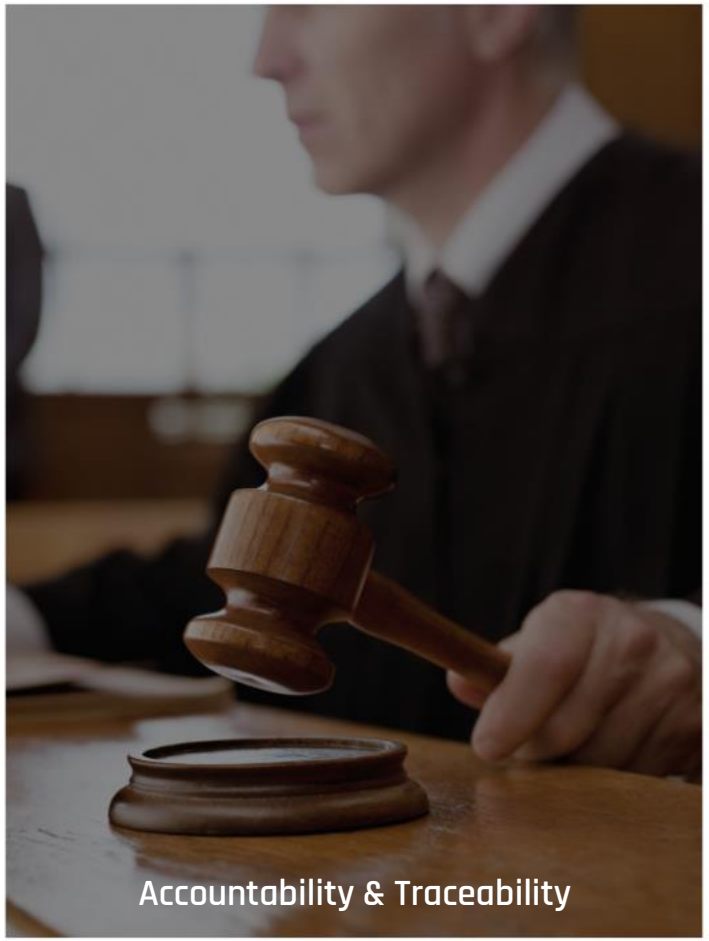
Incident Response - Challenges

EIncident Commanders encounter three main problems in their line of duty:



Information Saturation

Team Communication


Accountability & Traceability

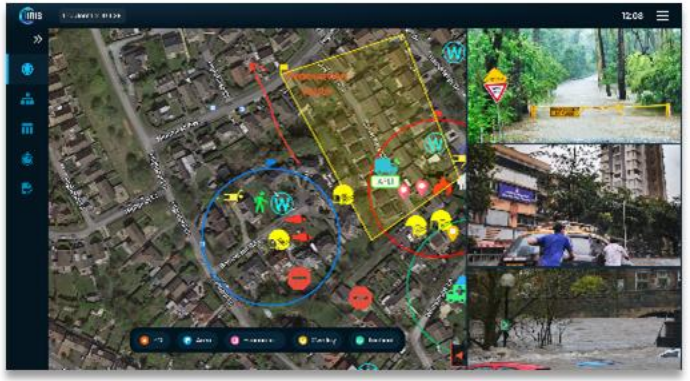
Incident Response

Post Incident Analysis

Incident Response - The Solution

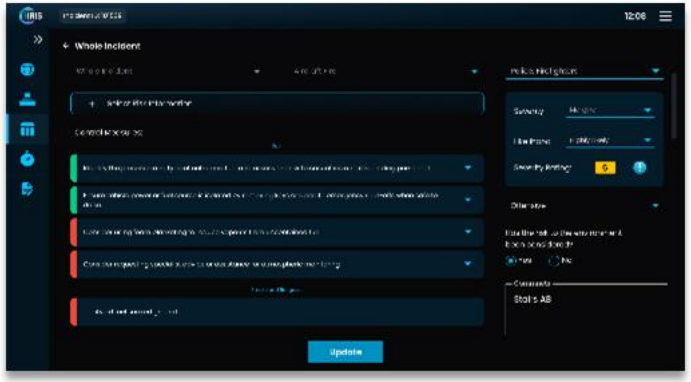
IRIS strives to ensure complete situational awareness, enhanced team collaboration & post-incident traceability.

Interactive map, with geographical layers, building maps, tactical drawing, points of interest and annotations.

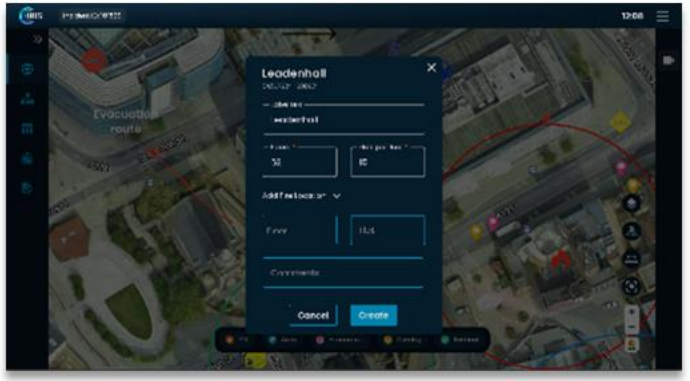


Video Streaming from any source (CCTV, smartphone, drone, helicopter, bodycam).

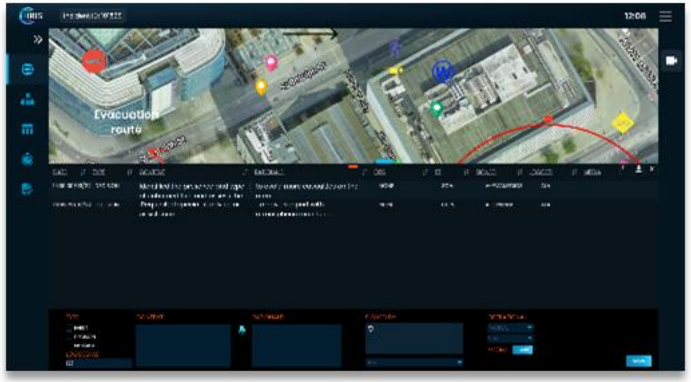
Asset geolocation - tracking of staff, vehicles, aircrafts and vessels.



Checklists & SOPs to support tracking of tasks.



Coordination forms such as command structure, risk assessments, evacuation forms, and briefs.



Decision & Message logs, supported by multimedia & voice-to-text.

Incident Response

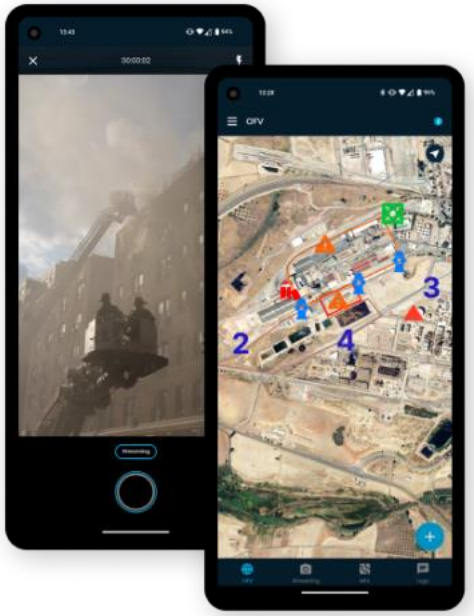
Post Incident Analysis

Incident Response - IRIS Core & Tactics

IRIS centralises vigilance and incident management tools with real-time data integration in a unified interface.

IRIS Core

Web-based incident command software.
Accessible from any device



IRIS Tactics

Bilateral communication between tactical teams & commanders.
Smartphone application for Android and iOS.

Incident Response

Post Incident Analysis

Incident Response – Operational Improvements

Briefing New Arrivals on Scene	Filling & Updating Forms	Strategic Committee Receives Updates	
Reduce half the time spent in briefing	Save between 20-60 minutes using IRIS	Without IRIS 30 - 60 min	With IRIS Instantly

Accomplishing Complex Evacuations	Post-Incident Reporting	
Reduce time spent by half using IRIS	Without IRIS 1 - 2 hours	With IRIS 30 - 40 min

* Based on contextual inquiries & interviews.

Incident Response

Post Incident Analysis

Future Trends

Autonomous Firefighting Systems

Robotic solutions capable of operating in high risk areas

Next Generation Sensor Networks

Deployable solar powered IOT sensors to compare baseline conditions and send real time alerts

AI Recommendation system

AI trained based on previous incidents designed to recommend best resource deployment to mitigate emergency

Thank you

Martín Nicholls

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