ENSOSP
French National Fire Officers' Academy

END USERS' PERSPECTIVE on the relevance of new tailor-made and optimised TECHNOLOGICAL SOLUTIONS for first responders in case of large scale NATURAL DISASTERS

PRESENTATION OF ENSOSP FIREFIGHTERS' OFFICERS ACADEMY

- Firefighters' Officers Academy providing Commanding Level trainings to over **25 000 professional firefighter officers** from France and other EU countries

- Training of wider audience (elected officials, risks managers from companies...) on **crisis management**

- Mandate in **Innovation and Prospective**

- Management of resources and knowledge related to civil security, through the **PNRS**

- Experience in EU R&D projects as **END-USER**, **TRAINING CENTER**, **PLATFORM MANAGER**

BACKGROUND FOR FIREFIGHTERS' FRAMEWORK OF ACTION
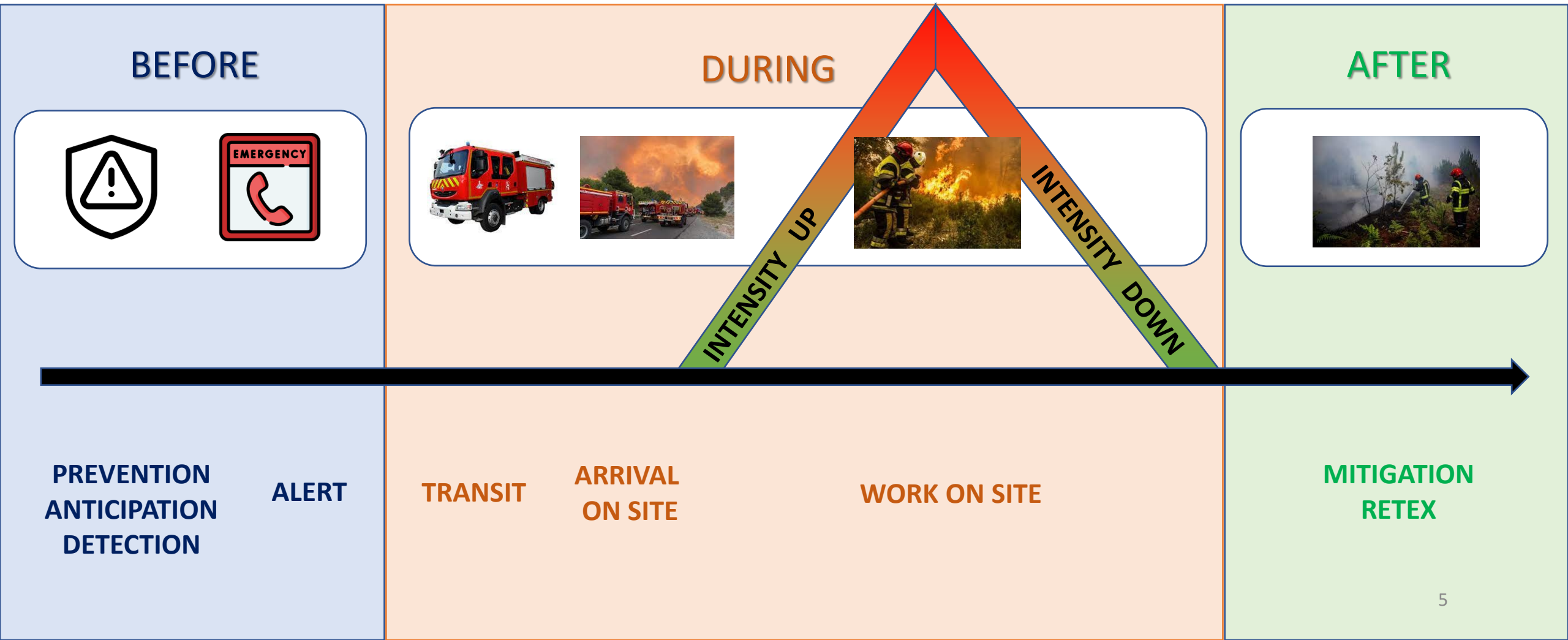
WHAT USERS NEED FROM TECHNOLOGIES

- TECHNO must have a **CLEAR ADDED-VALUE** compare to the existing solutions

  - improve the **EFFICIENCY** of first responders in operations by:
    - Improving their **situational awareness**, including with support technologies such as drones and robots
    - Enhancing their **capabilities**, including embedded technologies
  - improve the **SAFETY** of first responders in operations

- TECHNO must be **USER-FRIENDLY** to use

- TECHNO must **DESIGN** solutions compatible with existing Personal Protective Equipment and procedures

LARGE SCALE NATURAL DISASTER TIMELINE OF OPERATION

BEFORE

DURING

AFTER

INTENSITY UP

INTENSITY DOWN

PREVENTION ANTICIPATION DETECTION

ALERT

TRANSIT

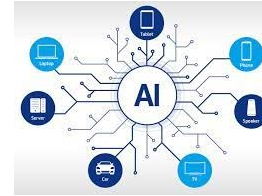**ARRIVAL ON SITE**

WORK ON SITE

MITIGATION RETEX

AVENUES FOR SUPPORT TECHNOLOGIES
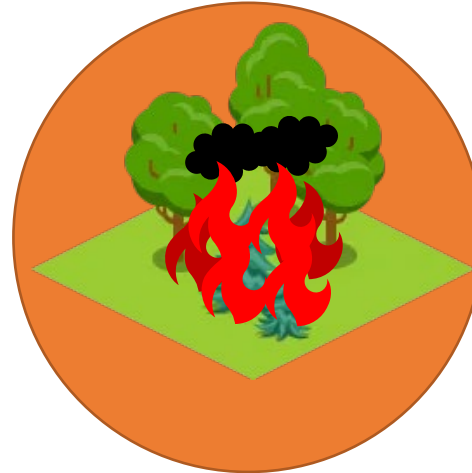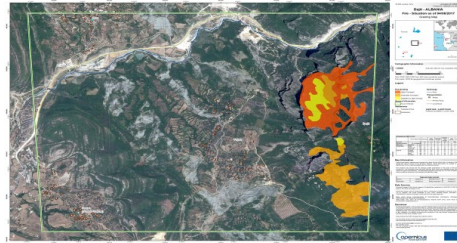
Monitoring systems (balloons, 360 camera, sensors)

Predictive and Decision-Making Support Systems

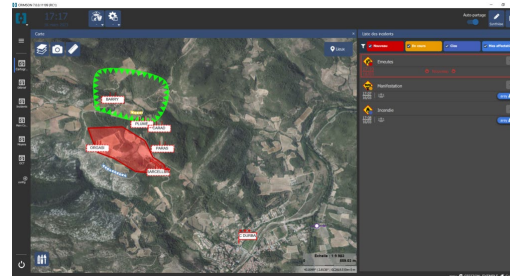Unmanned Aerial Vehicles (UAV - Drones)

Satellite Imagery

Unmanned Ground Vehicles (UGV - Robots)

Navigation and digital cartography

Robust Communication

5G

Common Operational Picture

First Responders Safety

BEFORE THE INCIDENT
PREVENTION / ANTICIPATION / DETECTION / ALERT

- Large Scale Monitoring Systems:

- High-frequency **SATELLITE** imagery

- **AERIAL** monitoring with water-loaded vehicles

- AI-powered **PREDICTIVE SYSTEMS**

- Alert to Population:

- Interoperable **TRANSNATIONAL** Alert system

- Robust and efficient **WARNING SYSTEMS**

- Localised Monitoring Systems:

- AI-powered **360° CAMERA** with smoke/flames detection algorithm on watchtowers / in forest

- Static **flying BALLOONS or DRONES** with Ai-powered **360° CAMERA**

- **SENSORS** in forest

DURING THE INCIDENT
TRANSIT / ARRIVAL ON SITE (early stages of incident)
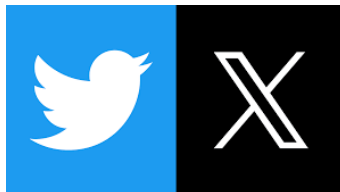
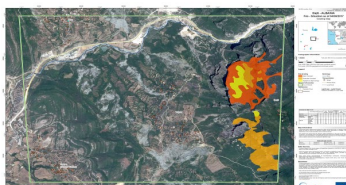- Access and anticipation in transit:

- **NAVIGATION SYSTEM** coupled with **EXPERT LAYERS**

- Collection and live **UPDATE OF INFORMATION** coming from official and social media channels

- Reconnaissance:

- **DRONES** for mapping and object detection

- **ROBOTS** able to navigate dangerous areas, map their surroundings and collect environmental information
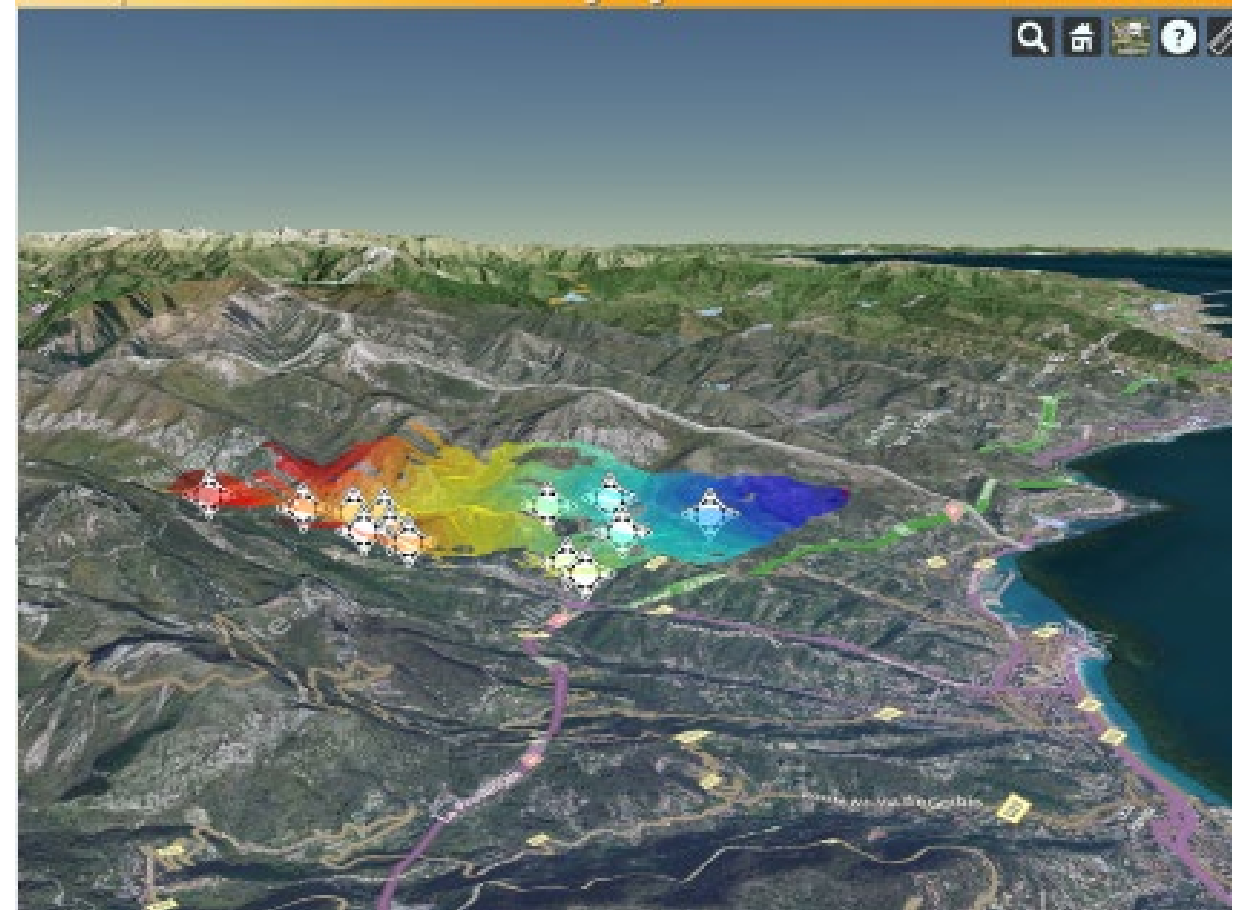
DURING THE INCIDENT

WORK ON SITE

- **COMMON OPERATIONAL PICTURE**:

- **LOCALISATION** of first responders, aerial and ground vehicles and elements of interest

- **VISUALISATION** of the **INCIDENT** shape, spread forecasts and behavior

- **VISUALISATION** of **EXPERT LAYERS** and vulnerability of the elements of interest (urban areas, firefighters, networks and infrastructures)

DURING THE INCIDENT
WORK ON SITE Technological support

DRONE / ROBOT for relief goods and **SUPPLY DELIVERY** in case of inaccessible area

DRONE / ROBOT to **ATTACK FIRE** when loaded with water, delaying agent

More efficient and environmental-friendly **DELAYING AGENT**

DIPHASIC NOOZLE

CURRENT SHORTCOMINGS & OBSTACLES TO WIDESPREAD UPTAKE

- **RESISTANCE TO CHANGE** in our organisations

- **LACK OF ROBUSTNESS** of hardware

- **TOO LOW TECHNOLOGICAL MATURITY LEVEL** of solutions proposed

- **LACK OF COMPATIBILITY** with existing PPE

MAIN MESSAGES

- Listen to our needs
- Allow us to test & provide feedbacks
- Collaboration in R&D projects
- Participation in Pre-procurement projects