

# EMERGENCY MANAGEMENT CENTER BUILDING RESILIENCE



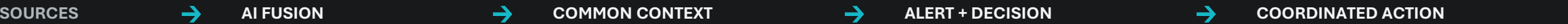
# MATOSINHOS COMBINES AI, MULTIPLE SOURCES AND REAL-TIME DATA TO ACT WITH GREATER ANTICIPATION, CONTEXT AND COORDINATION

## CIVIL PROTECTION EMERGENCY MANAGEMENT CENTER



# CIVIL PROTECTION IN REAL TIME

| INTELLIGENCE AND DETECTION |                     | ENVIRONMENT AND COAST |                                  | INCIDENTS AND MOBILITY |                    | RESOURCES ON THE GROUND |                          |
|----------------------------|---------------------|-----------------------|----------------------------------|------------------------|--------------------|-------------------------|--------------------------|
| 01                         | MIA — Virtual agent | 01                    | Weather                          | 01                     | Earthquakes        | 01                      | Service vehicle Tracking |
| 02                         | Plumeradar          | 02                    | Air quality                      | 02                     | ANEPC incidents    | 02                      | Fire Truck Tracking      |
| 03                         | Fires               | 03                    | Tides                            | 03                     | Road traffic       |                         |                          |
|                            |                     | 04                    | Flooding and coastal overtopping | 04                     | Transport tracking |                         |                          |



Continuous updating brings detection, understanding and response closer together in the same operational picture.



# Risk, occurrence and location in the same frame



Risk status, total fires, parish, typology and georeferenced map.

## EVIDENCE IN THE APPLICATION

### KEY FEATURES

#### Current and future risk

It compares the risk of fire today and tomorrow.

#### Incident report

It shows the total, the parish and type of active fire.

#### Spatial reading

Locates occurrences on the map and provides context for their distribution

### OPERATIONAL IMPACT

A single reading facilitates surveillance, prioritization, and mobilization.

## Weather

# Weather forecasting plays a direct role in planning.



Current conditions, 12-hour and 5-day forecast, active warnings and wind map.

### KEY FEATURES

#### Current conditions

Temperature, humidity, wind, pressure and precipitation in one panel.

#### Multi-scale forecasting

It shows the evolution in the coming hours and days.

#### Warnings and wind

Integrates active alerts and wind direction/intensity into the map.

### OPERATIONAL IMPACT

Teams adjust readiness and operation to the expected conditions.

# The state of the sea is monitored from the present to the next tide



Height, period and direction of the wave, forecast, next high tide and beach cameras.

## EVIDENCE IN THE APPLICATION

### KEY FEATURES

#### Marine condition

It exhibits significant height, period, direction and temperature.

#### Expected evolution

It shows wave curves and time until the next high tide.

#### Local observation

It combines beach cameras with visual indices of sea state.

### OPERATIONAL IMPACT

Best coastal reading for surveillance, warnings and protection of people.

# Critical mobility is measured and localized in real time



Accidents, hazards, traffic jams, road closures, length and average speed.

## EVIDENCE IN THE APPLICATION

### KEY FEATURES

#### Road incidents

It distinguishes accidents, hazards, congestion and cuts.

#### Quantified impact

It measures the congested length and average speed of the roads.

#### Operational map

It locates alerts and highlights the most conditioned axes.

### OPERATIONAL IMPACT

It facilitates detours, emergency access and anticipation of constraints.

# Seismic context becomes clear before triggering an alarm



## KEY FEATURES

### Recent activity

It lists the latest earthquakes on land and at sea.

### Characterization

It shows proximity, magnitude, depth and daily evolution.

### Tsunami state

It makes explicit warnings and tsunami condition for the coast.

Latest events, land/sea totals, proximity, magnitude, depth, and tsunami status.

## EVIDENCE IN THE APPLICATION

## OPERATIONAL IMPACT

Contextualized information reduces uncertainty and speeds up initial assessment.

# Coastal risk is anticipated and confirmed in the territory



24–96-hour risk scenarios, Sentinel-2 imagery, and local map of exposed areas.

## EVIDENCE IN THE APPLICATION

### KEY FEATURES

#### Prospective risk

It projects floods and overtopping for different time horizons.

#### Territorial observation

It combines satellite imagery with local cartography.

#### Probable occurrences

Highlights areas that are most likely to guide surveillance.

### OPERATIONAL IMPACT

Anticipation allows you to position teams and communicate before the aggravation.

# Pollutants and alerts are read at the municipal and local scale



Average municipal index, alerts, sources of pollution and levels by parish.

## EVIDENCE IN THE APPLICATION

### KEY FEATURES

#### Contents and Alerts

It displays medium quality and active warnings.

#### Origin of pollutants

Distributes the contribution by source and quality class.

#### Territorial reading

It compares pollutant levels between parishes and on the map.

### OPERATIONAL IMPACT

The information supports health warnings and local prevention measures.

## FIRE TRUCK TRACKING

# Nearby vehicles and emergencies share the same map



### KEY FEATURES

#### Geopositioning

Identify each vehicle by body and position.

#### Communication status

Distinguishes between active vehicles and lost signals.

#### Nearby emergencies

Relates the available fleet to occurrences and distances.

Active vehicles, lost communications, geolocation and emergency incidents.

### EVIDENCE IN THE APPLICATION

### OPERATIONAL IMPACT

Better allocation of resources reduces uncertainty in mobilization.

# The transport network reveals movement, coverage and blockages



Vehicles by operator and municipality, speed, typology, routes and traffic alerts.

## EVIDENCE IN THE APPLICATION

### KEY FEATURES

#### Fleet in circulation

Quantifies vehicles by operator and geographic area.

#### Network and typology

Shows distribution by vehicle type and route coverage.

#### Overlapping traffic

It integrates road alerts to anticipate disturbances.

### OPERATIONAL IMPACT

Collective mobility enters the operational image of the emergency.

# Each occurrence is accompanied by the alert to the conclusion



## KEY FEATURES

### Operating cycle

Organizes incidents by response phases.

### Georeferencing

Locates alerts and occurrences in the municipal territory.

### Nature of the occurrence

It presents typology and state to facilitate prioritization.

Arrival, dispatch, surveillance, resolution, course and conclusion, with location on the map.

## EVIDENCE IN THE APPLICATION

## OPERATIONAL IMPACT

Shared monitoring improves coordination, escalation and information sharing

# A platform to decide earlier and perform better

**01****CAPTURE**

Sensors, radars, databases, maps and operating systems.

**02****COMBINE**

AI crosses signals and converts them into a coherent operational picture.

**03****PRIORITIZE**

Alerts, context, and proximity make risk actionable.

**04****ACT**

Teams, vehicles and partners respond with better coordination.

**UPDATE BY THE SECOND****Anticipation**

Detect earlier

**Background**

Understand better

**Coordination**

Mobilize together

**Trust**

Deciding with evidence

## A single platform. The whole situation. Every second.

**The world is  
changing**



**Portugal is  
changing**



**Matosinhos is  
changing**



**I'm  
changing**

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**Let's change together!**

# Thank you!

