

# ESA and ESRIN Activities

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ESA UNCLASSIFIED – For ESA Official Use Only

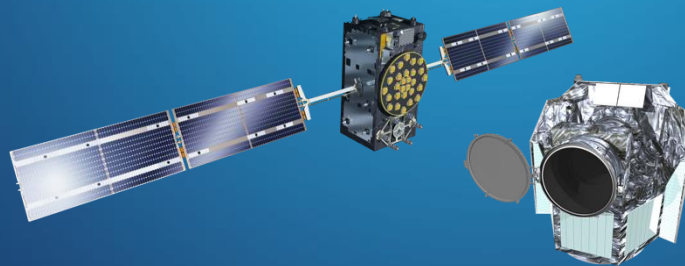


# The European Space Agency



# What is the European Space Agency?

Make Space  
for Europe



Pushing the limits of  
what is possible in  
space since 1975



5 500+

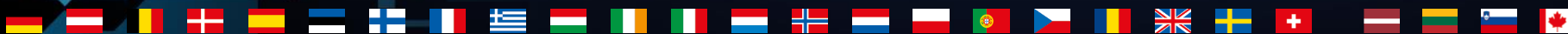
ESA Workforce

22

Member States

2022 Budget

€ 7.2 billion =  
12 per European



# ESA Activities and Achievements



ESA is active across **every area** of the **space sector**

**World leader in science and technology**

**Over 80 satellites** developed, tested, and operated **since 1975**

**More than 220 launches** from Europe's Spaceport in Kourou

**All of this is possible thanks to the collaboration of ALL ESA Member States**



# ESA Membership



## 22 Member States

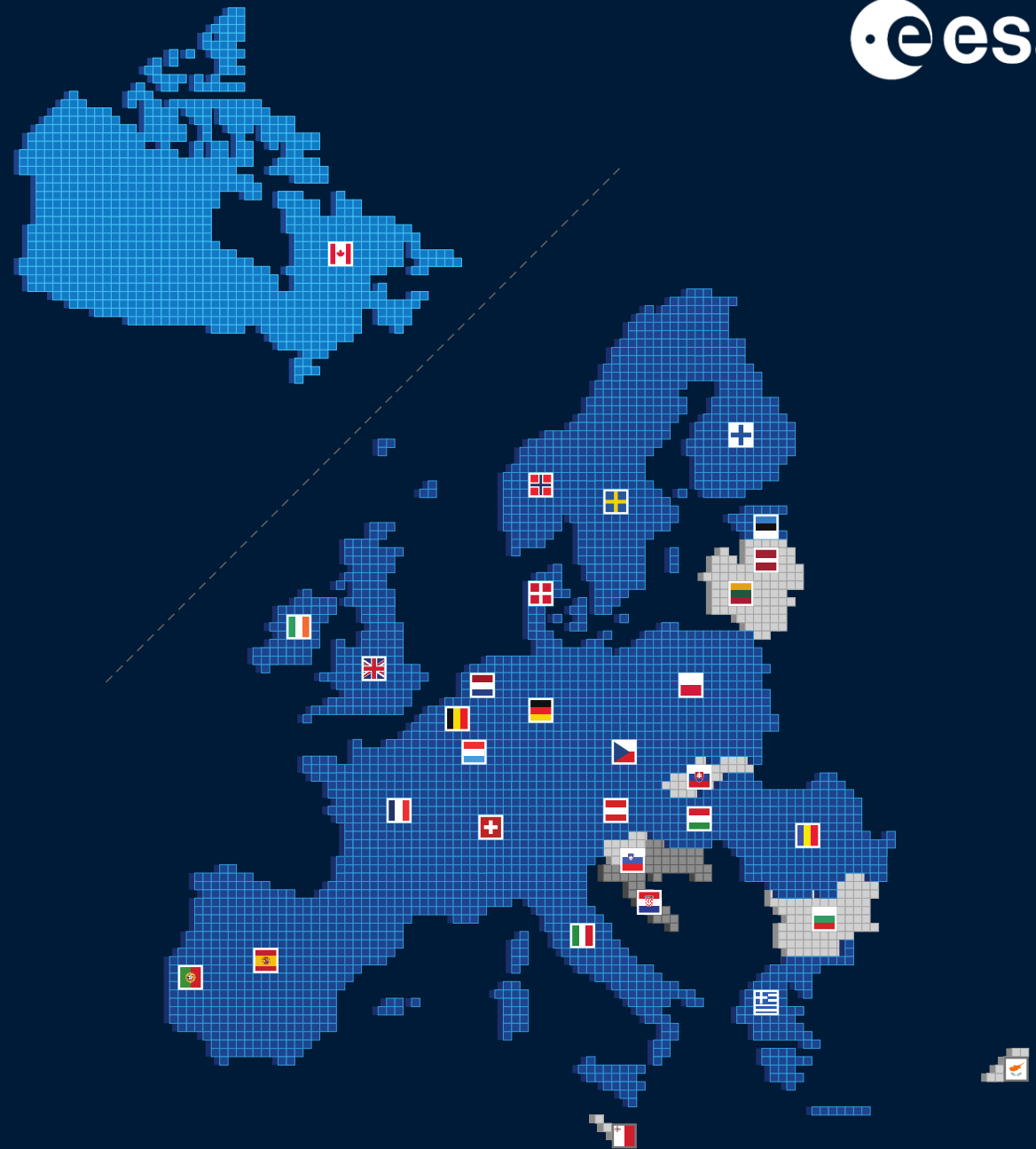
Austria	Italy
Belgium	Luxembourg
Czech Republic	Netherlands
Denmark	Norway
Estonia	Poland
Finland	Portugal
France	Romania
Germany	Spain
Greece	Sweden
Hungary	Switzerland
Ireland	United Kingdom

## 3 Associate Members

Slovenia, Latvia, Lithuania

## Cooperation Agreements

6 other European States + Canada



# ESA Locations



A central image of the Earth from space, surrounded by glowing yellow and white orbital paths and a network of white lines connecting various points on the globe. The background is a deep blue space filled with stars and nebulae.

# ESA Strategy

## Accelerating the use of space in Europe



# ESA AGENDA 2025

Common European Space Vision for 2035+  
5 priorities with targets for 2025



- ESA-EU relations
- Commercialisation
- Safety & security
- Programme challenges
- ESA transformation

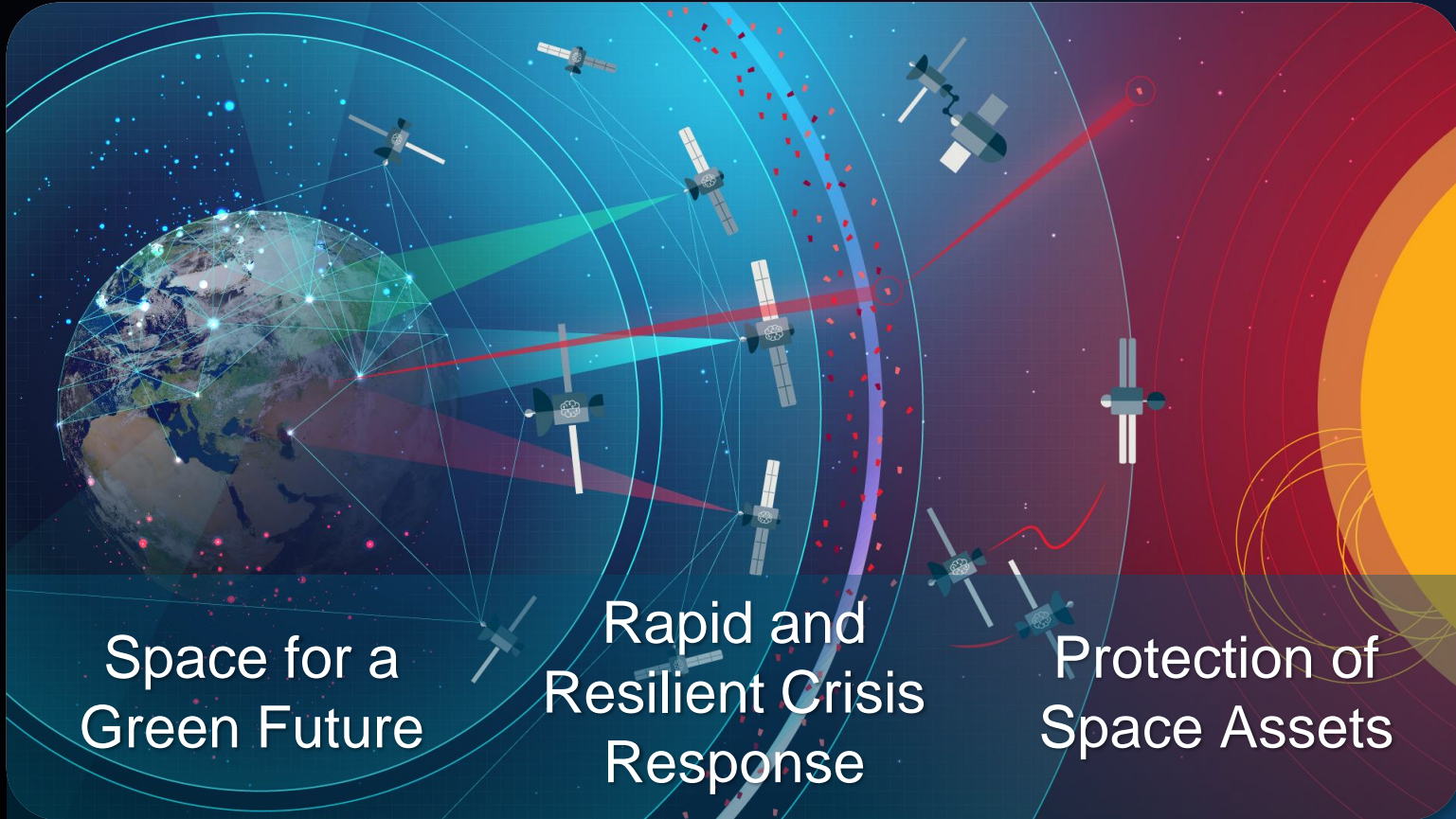


# Accelerators: a new concept of action for Europe



- Focus on responding to urgent societal needs
- Users at the centre
- Strengthen European leadership and STEM
- Attract new funding sources
- Combine strengths of ESA, EU, Member States and the commercial sector

# Accelerating the use of space



## 3 Accelerators



## 2 Inspirators

# ESRIN – ESA's Eye on Planet Earth



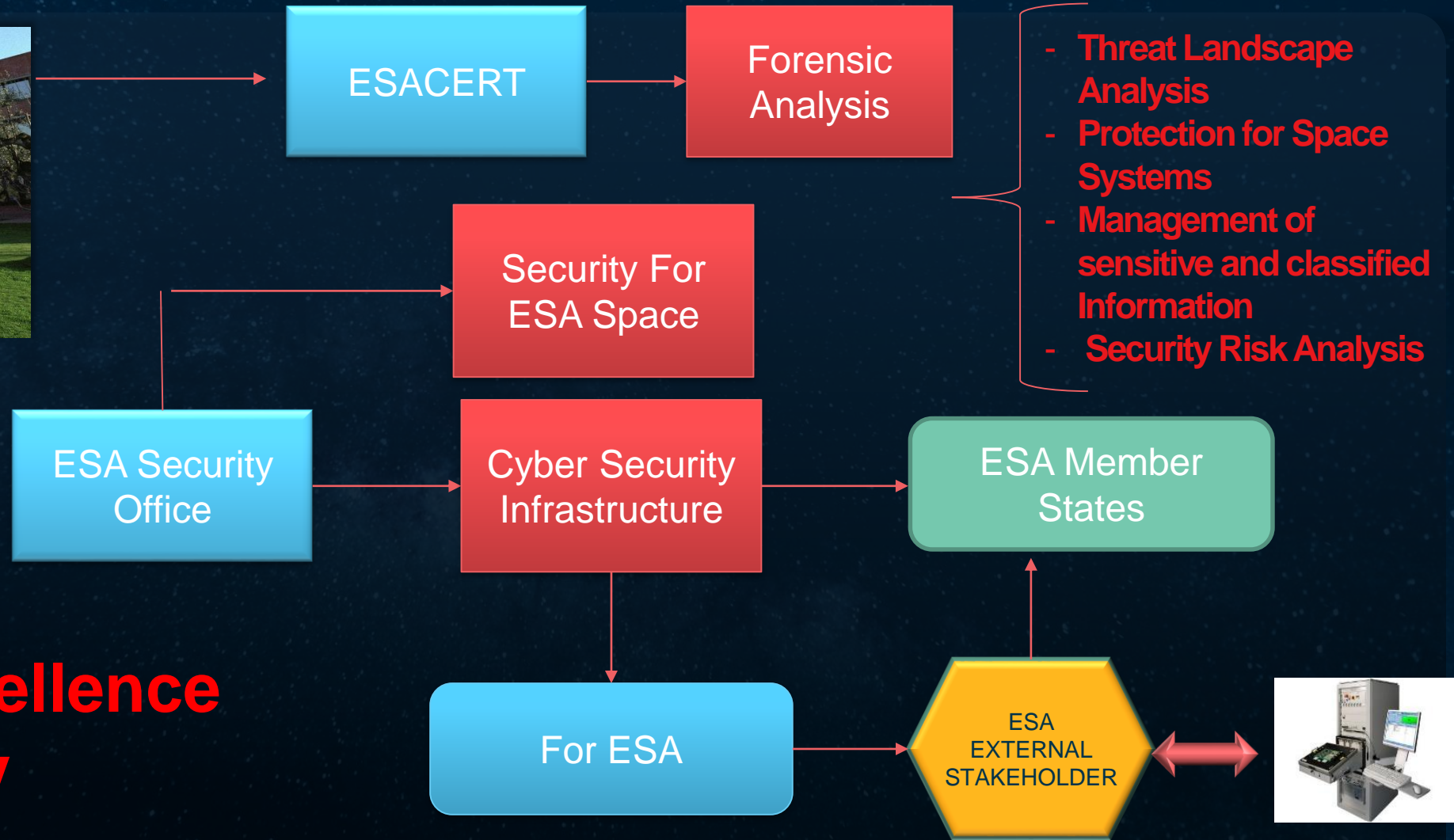
# Disaster Charter Coordination Centre (24/7)



- **Immediate disaster response:** unified system of space data acquisition & delivery in case of natural or human-made disasters
- ESA co-founder & major player
- **Operational 24 / 7 in ESRIN**
- +/- 40 activations per year
- Since 2000 **responded to 588+ disasters** in 125 countries



# Security In/From ESRIN



**Security Excellence  
In Italy**

# ESA's Earth Observation Mission

## Missions

15 in operation  
39 in development  
12 in preparation



Develop world-class Earth Observation systems with European and global partners to address scientific & societal challenges

Science

Copernicus

Meteorology

\*Pending final mission selection



# EO support - monitoring critical infrastructures

- Energy grids
- Nuclear Facilities
- Oil /Gas pipelines
- Heath Infrastructures
- Agriculture & Fisheries
- Resource Management
- Transportation: Roads, bridges, railways, aviation/airports; shipping & ports; transit
- Natural hazards
- Security
- ...

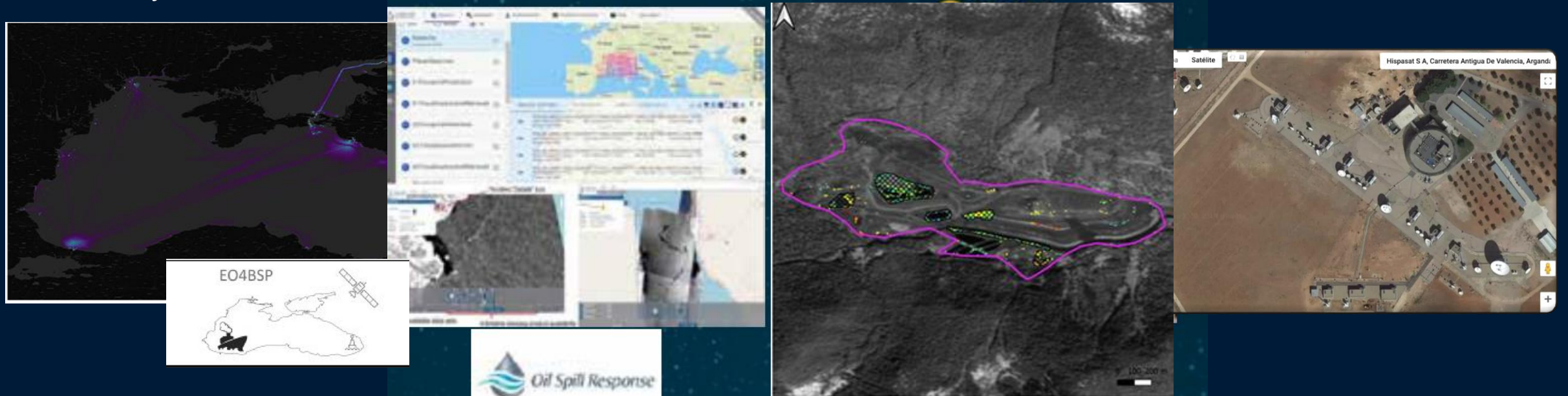






# Critical Infrastructures - Platform Developments

- Regional Initiatives (Alps, Atlantic, Black Sea/Sea Danube, Baltic)
- Information services to enhance and integrate within existing regional monitoring and assessment frameworks in cooperation with national and regional authorities (e.g environmental protection, land slides risk assessment..)
- Platforms exploiting EO for real-time incident satellite imagery has grown within the oil and gas industry

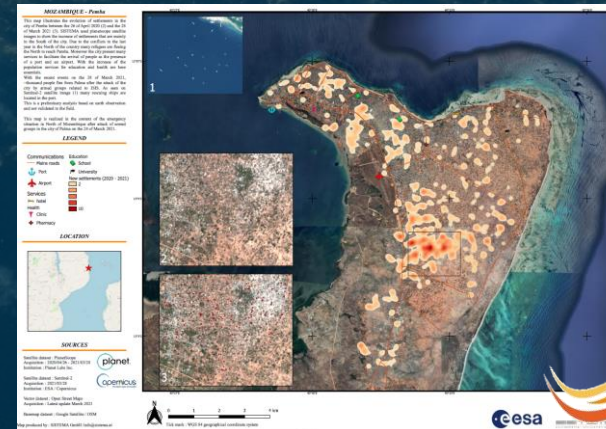
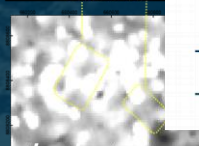
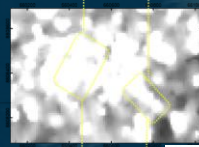
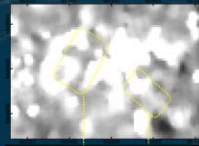
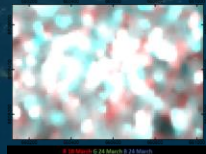
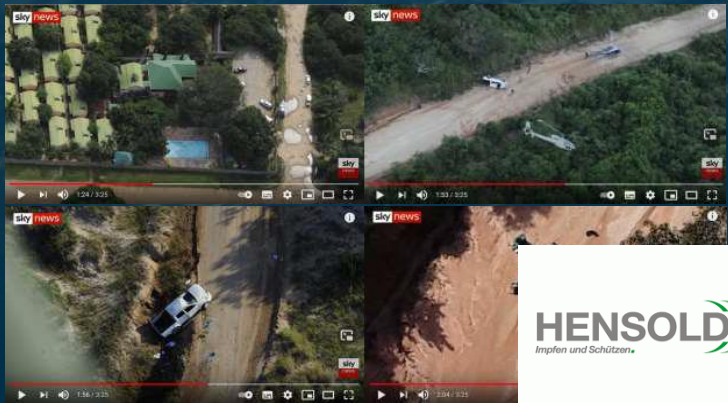


# Critical Infrastructures – Applications to support humanitarian aid deployment



## Impact:

- Analysis of the situation on the ground, and offer strategically valuable insights about the militant group.
- Provision of information potential risky areas, on displacements location, road network assessment and available water resources to support humanitarian aid funding and deployment



*Water resources assessment and support to evacuation plans based on the feeds and the satellite imagery*



*Automatic collection of relative video scenes from media news*

*Multitemporal changes related to terrorist attacks – movement of assets and people*

## Sana'a (Yemen)

## Use of AI Super Resolution and AI Classification for Object based Change Detection

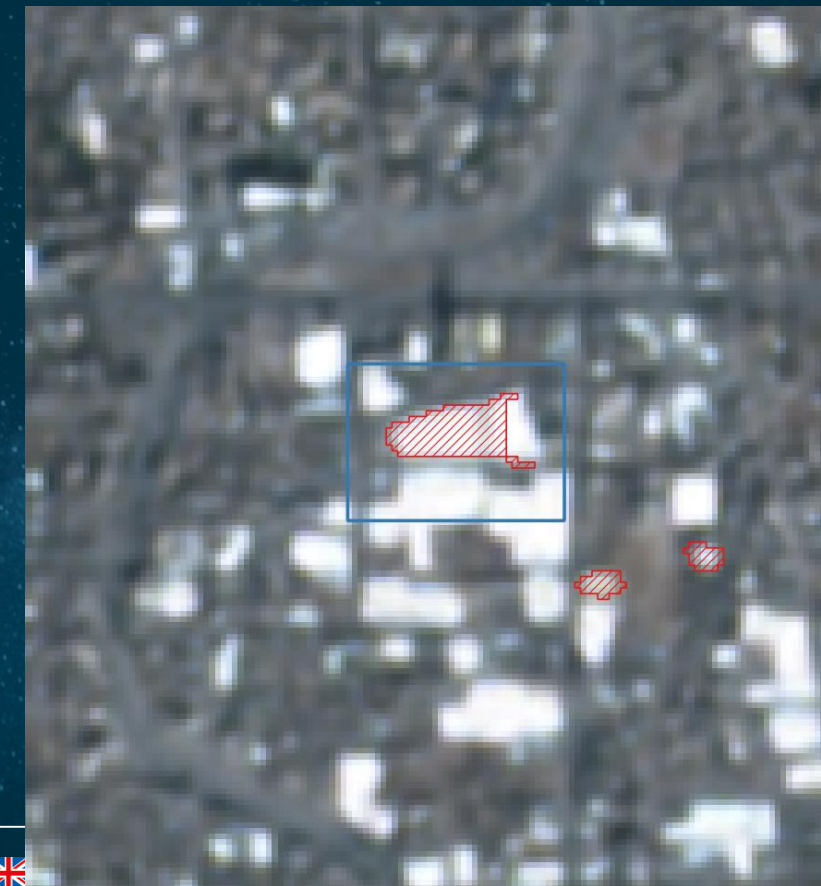
Jilin-1 GF03C01  
GSD 1.21m Night Image  
2021-06-07



WorldView-2  
GSD 2m  
2019-03-22



Sentinel2 SR (GSD 5m)  
Object based AI Classification  
2020-12-26

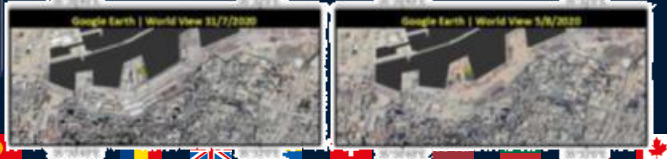
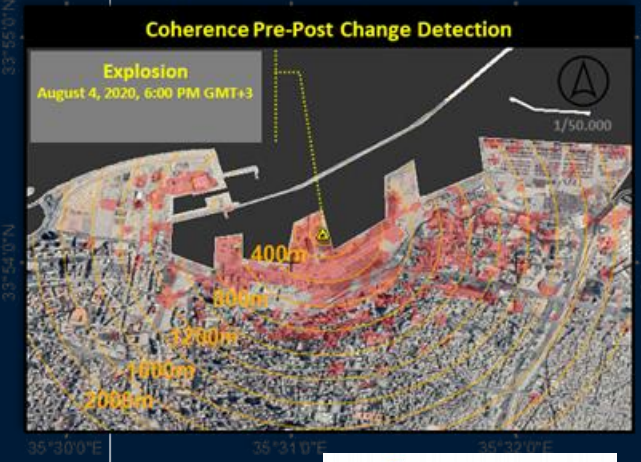
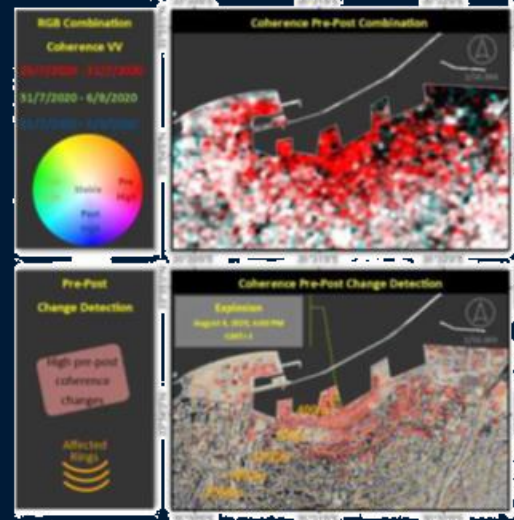
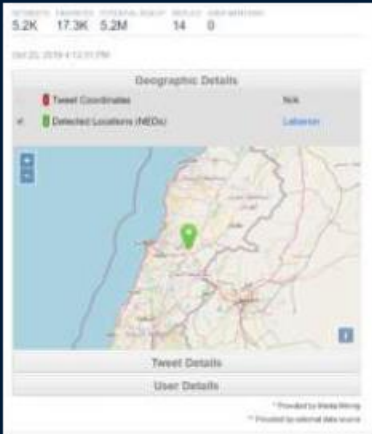
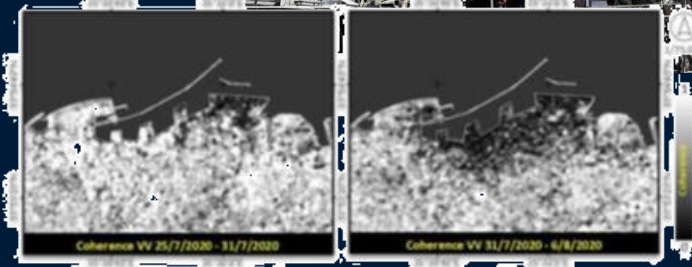
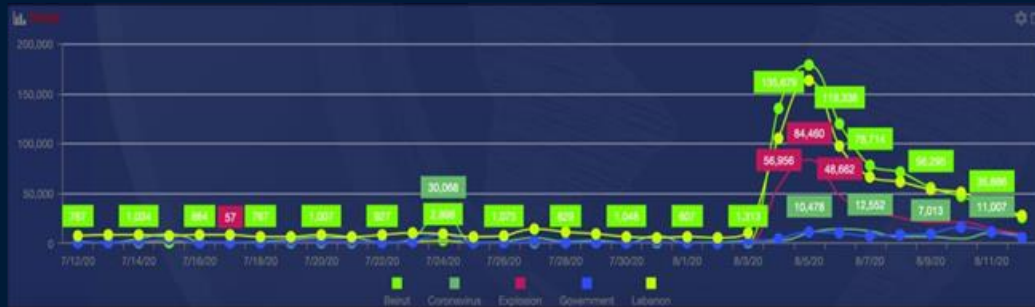


# EOLAW Project

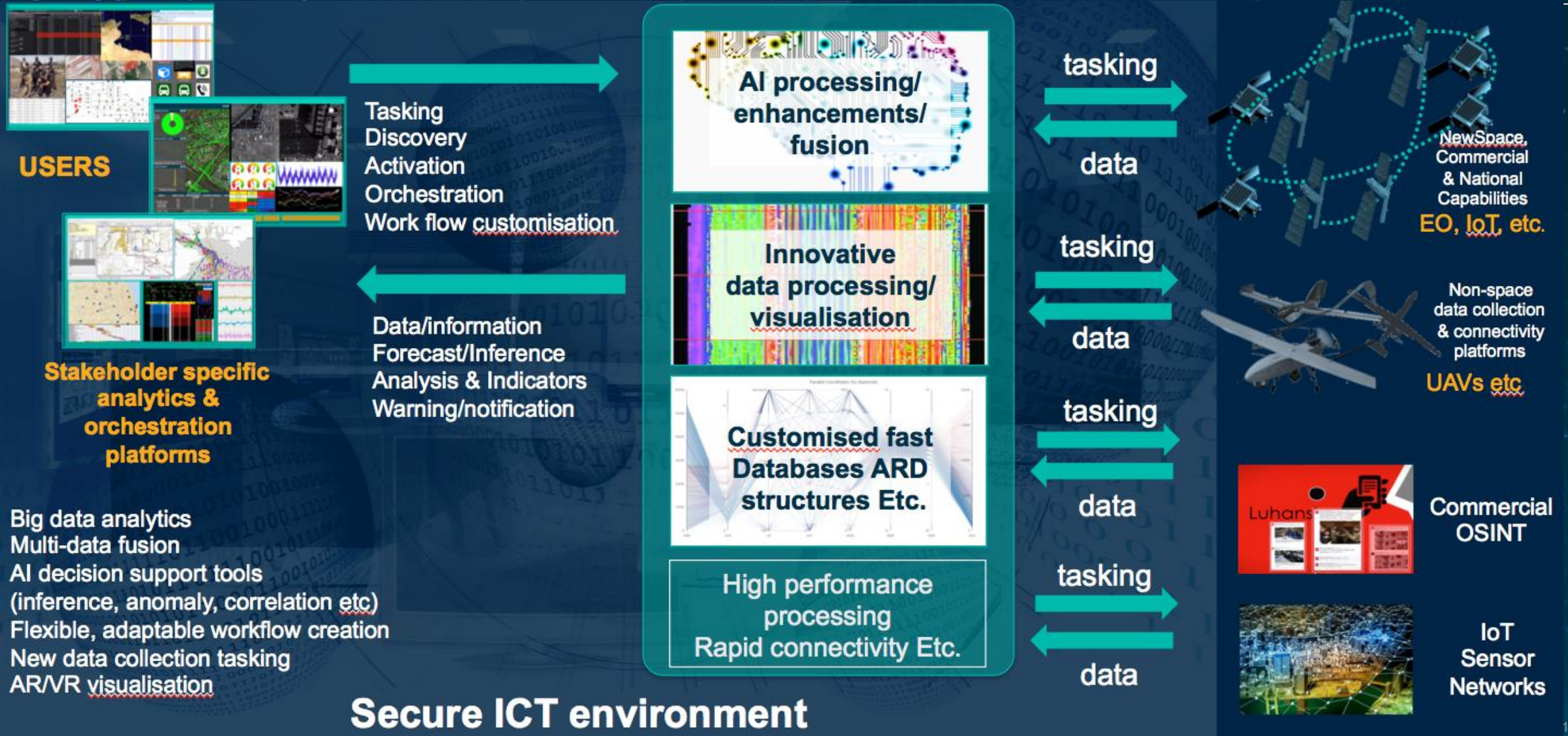


## DETONATION IN BEIRUT, LEBANON 4 AUGUST 2020

Social media and fake news correlation to support on damage assessment



# Moving Forward – Overall Vision



# MAKE SPACE FOR EUROPE

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