

# Integration of ATM in U-space – DOMUS project

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 U-space





# DOMUS Consortium



ENAIRe 



indra



AIRMAP

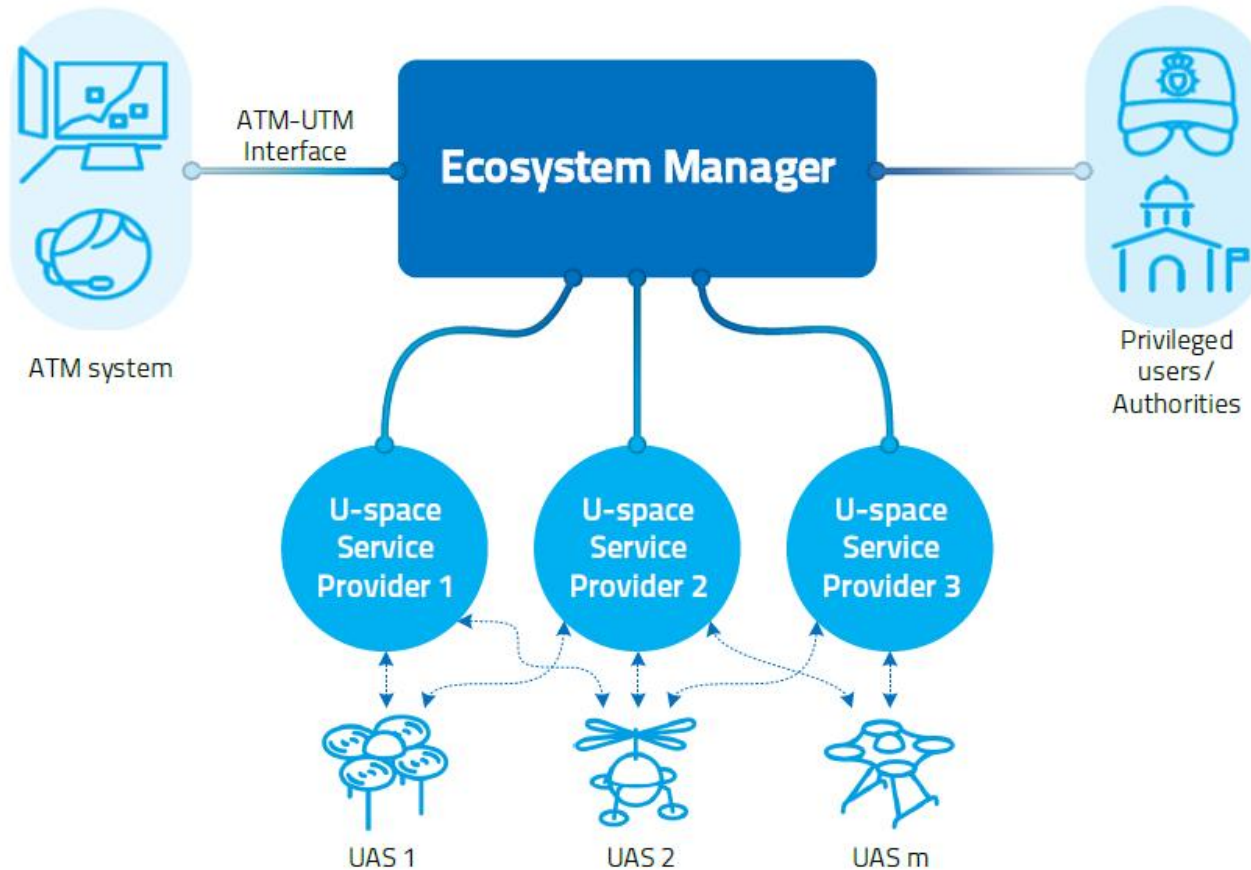
EARTH NETWORKS

Aeroespacial y Defensa

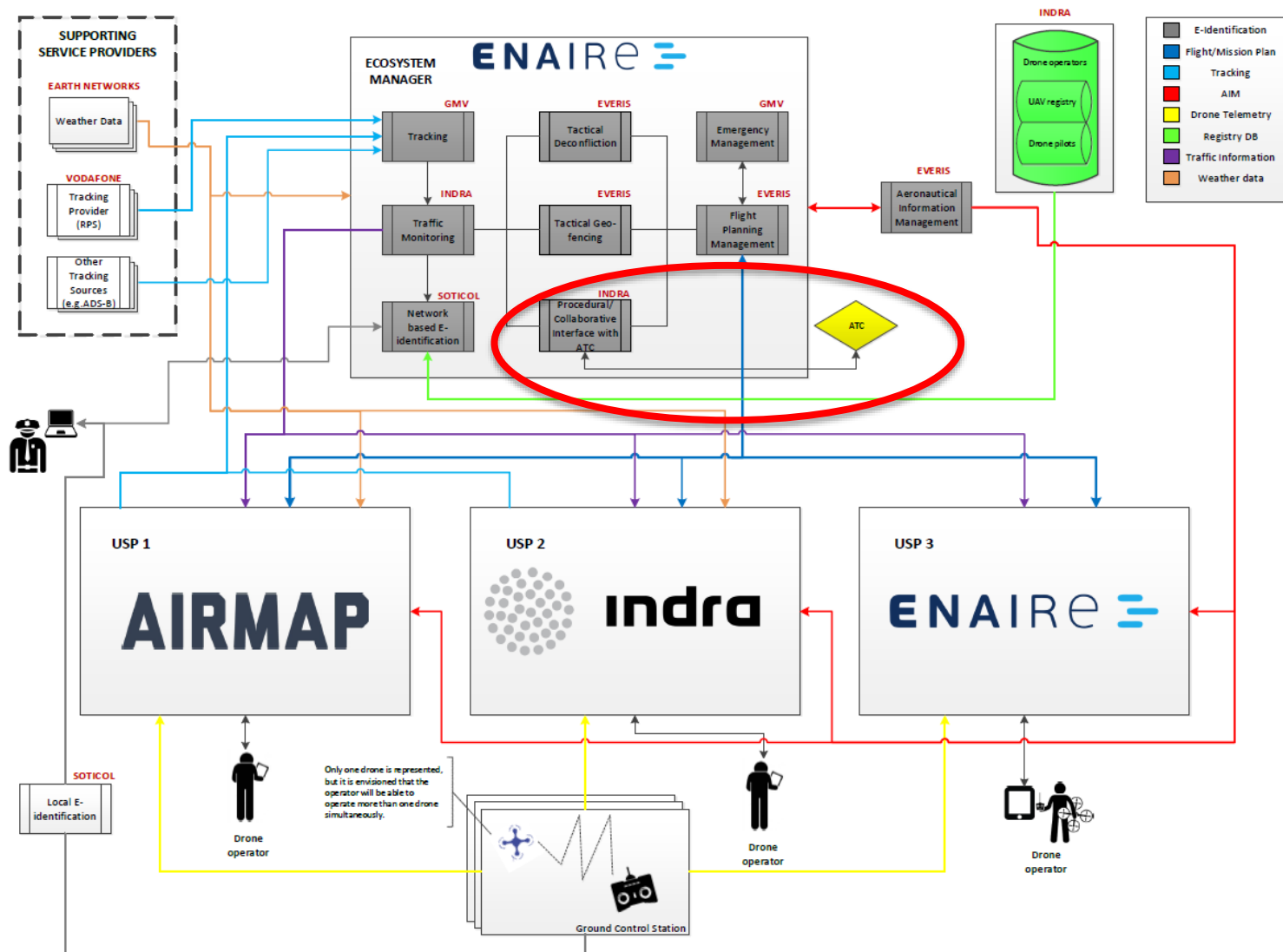


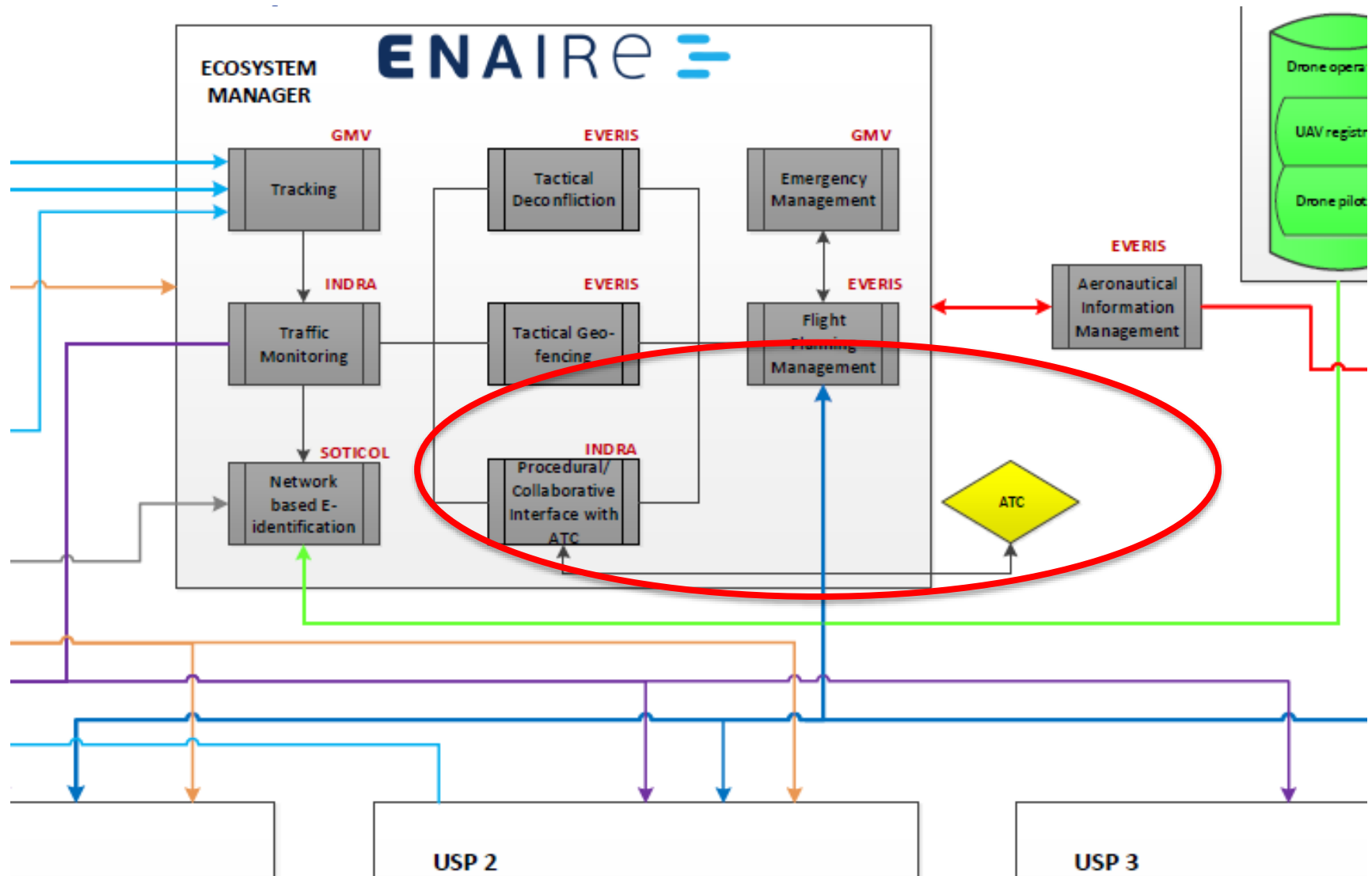
ineco

# U-space Architecture

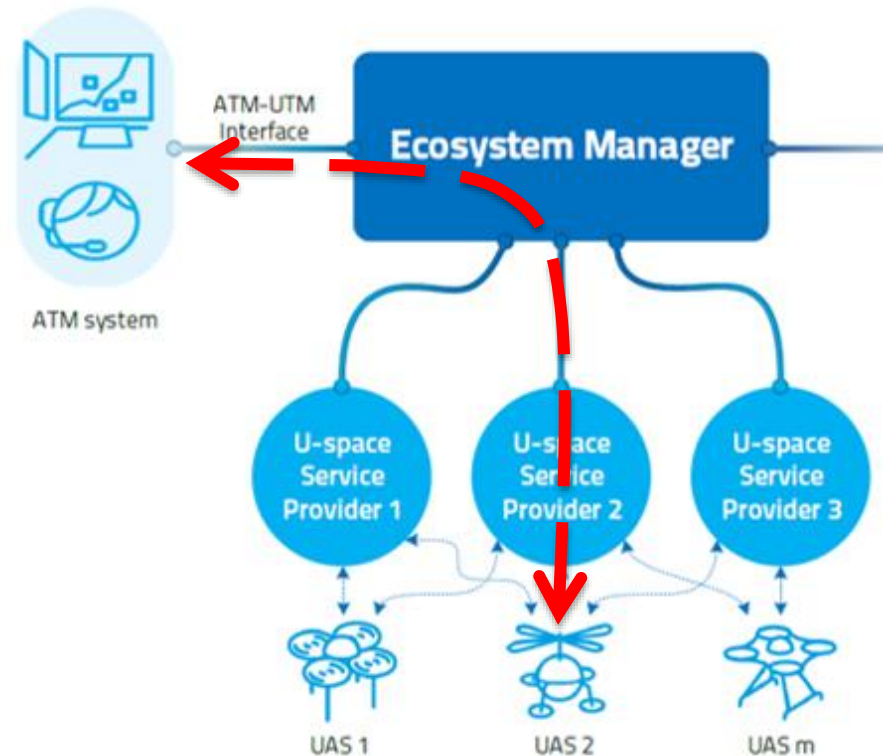
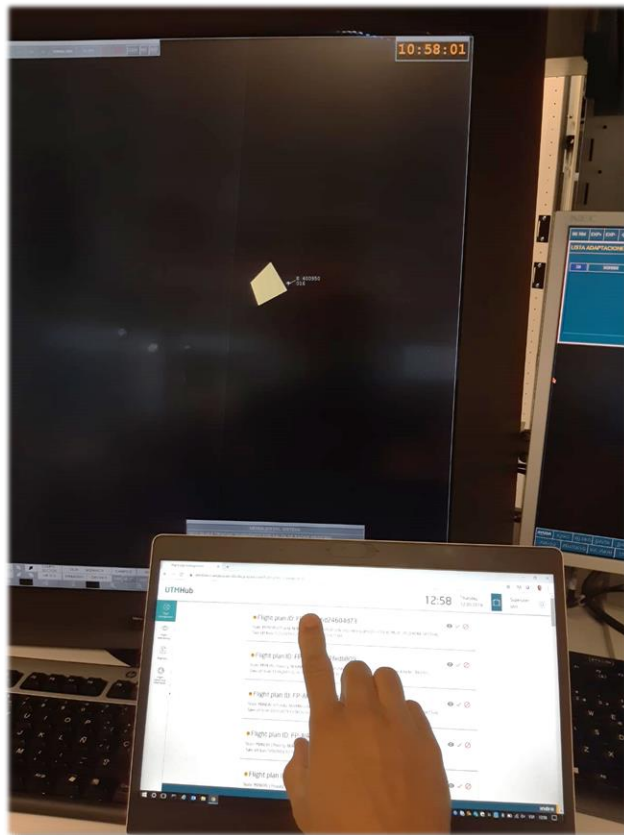


# DOMUS Architecture (In flight phase)

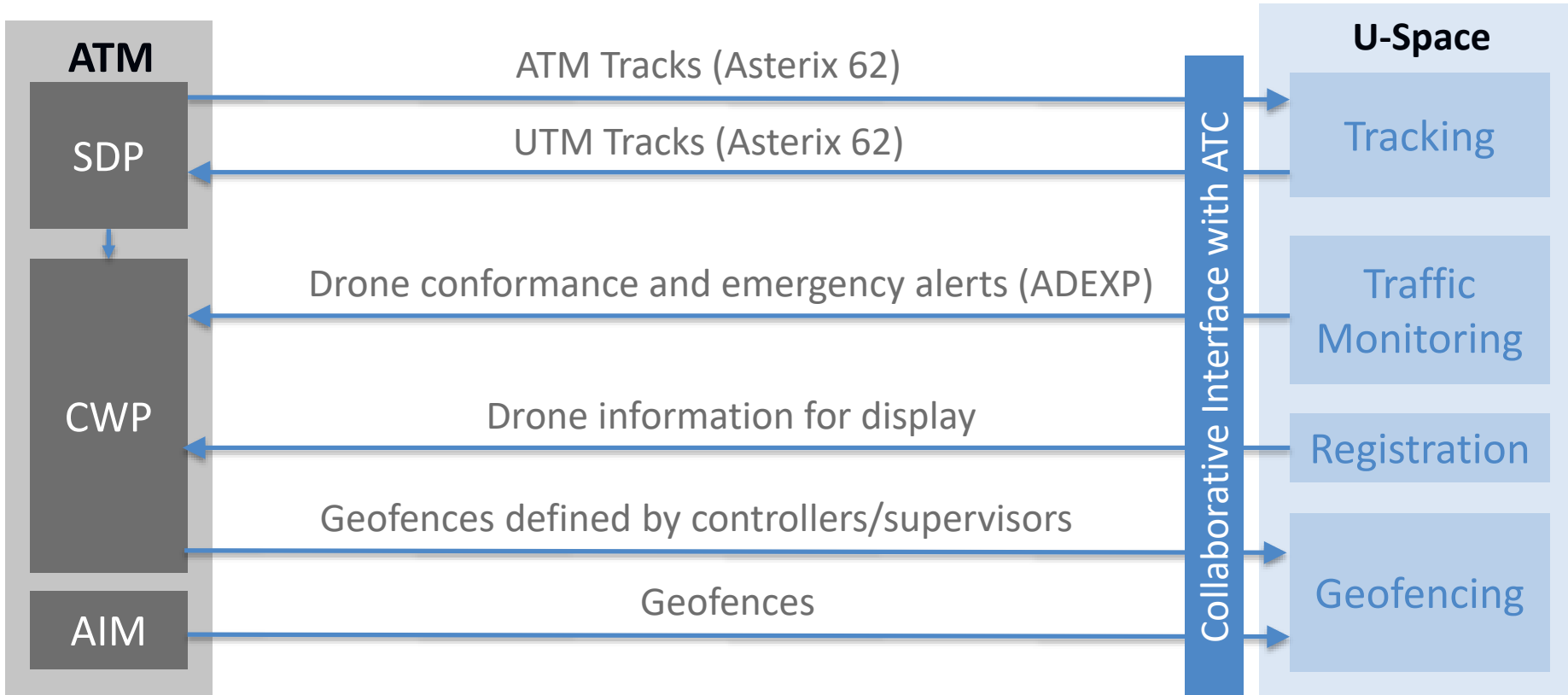




## U2 Procedural Interface ATC : ATC Approval



## U3 Collaborative interface ATC (1/4):



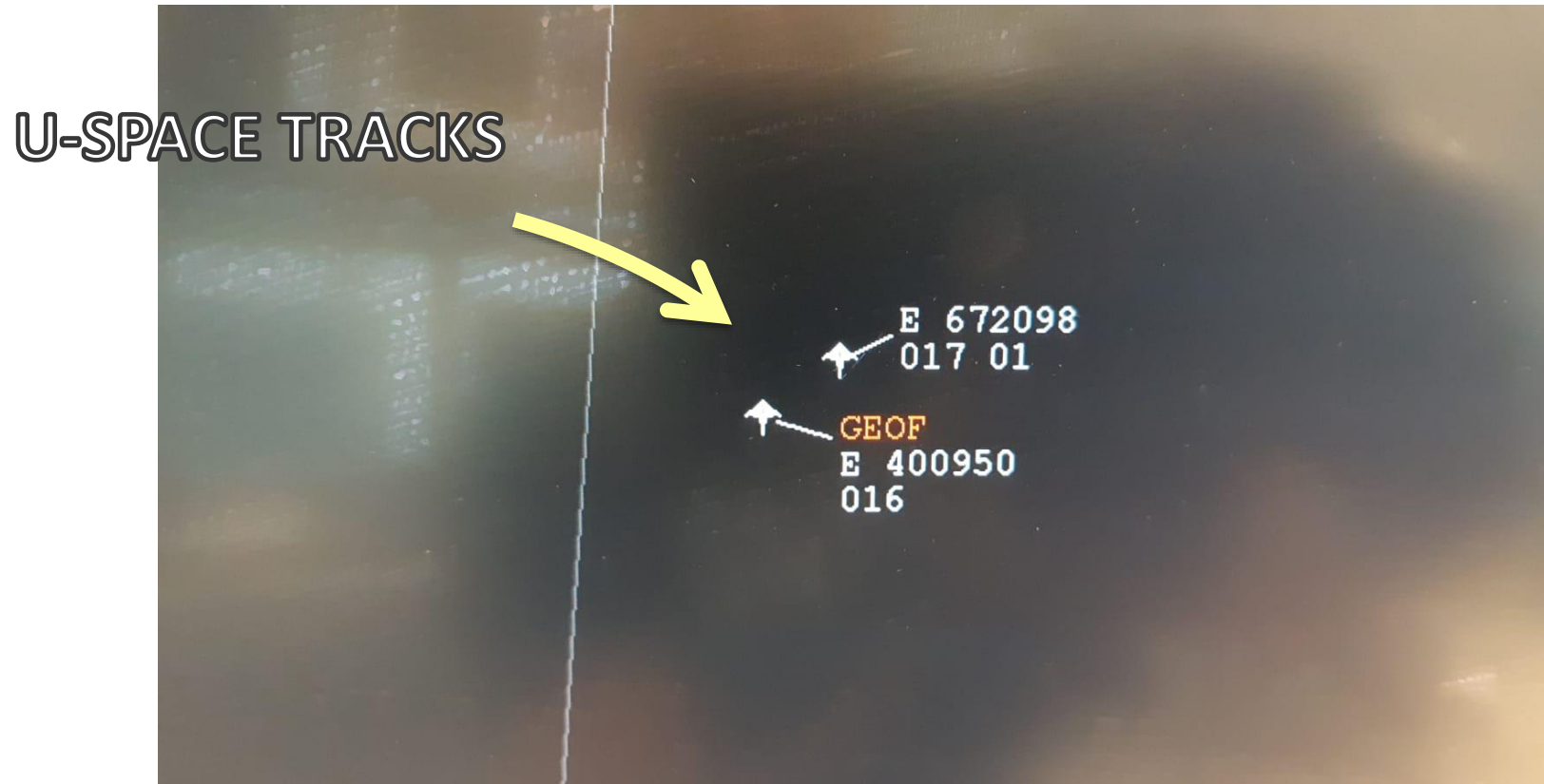
- Minimum changes in ATM are required:
  - U-Space is considered as an external surveillance provider
  - CWP is slightly modified to display and filter the information

# U3 Collaborative interface ATC (2/4): Traffic Information

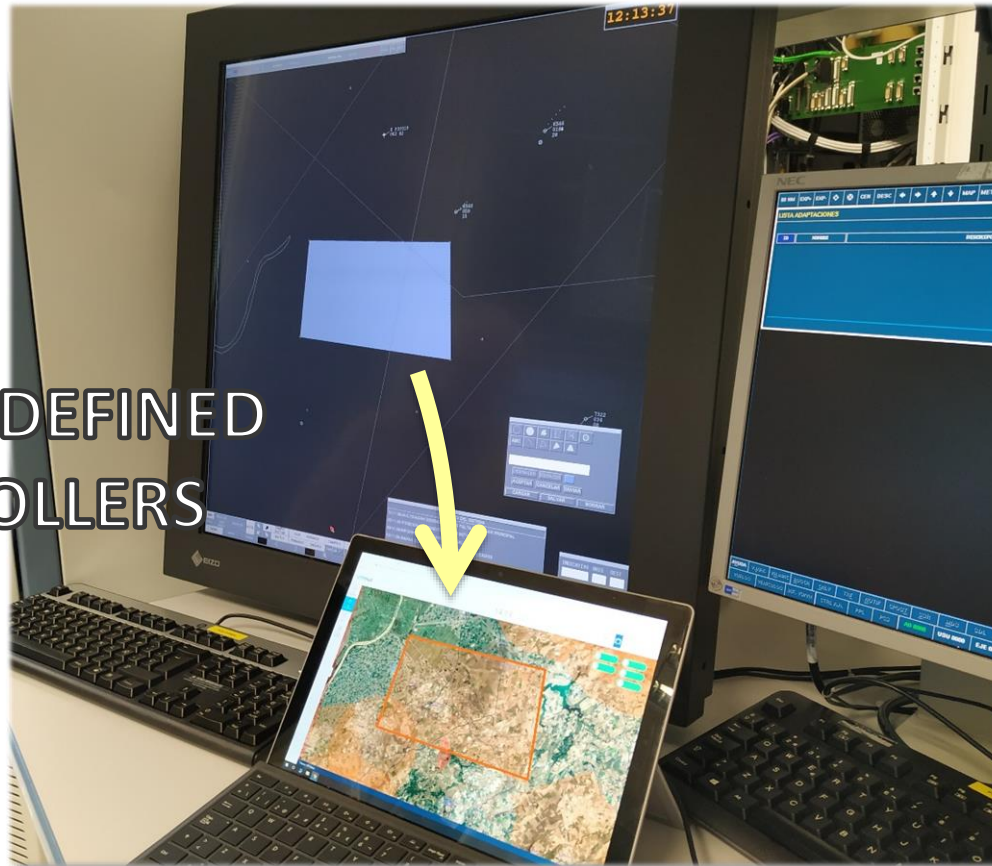




## U3 Collaborative interface ATC (3/4): U-space track with GEO alert



## U3 Collaborative interface ATC (4/4): Geofence Creation



GEOFENCE DEFINED  
BY CONTROLLERS

## SUMMARISING

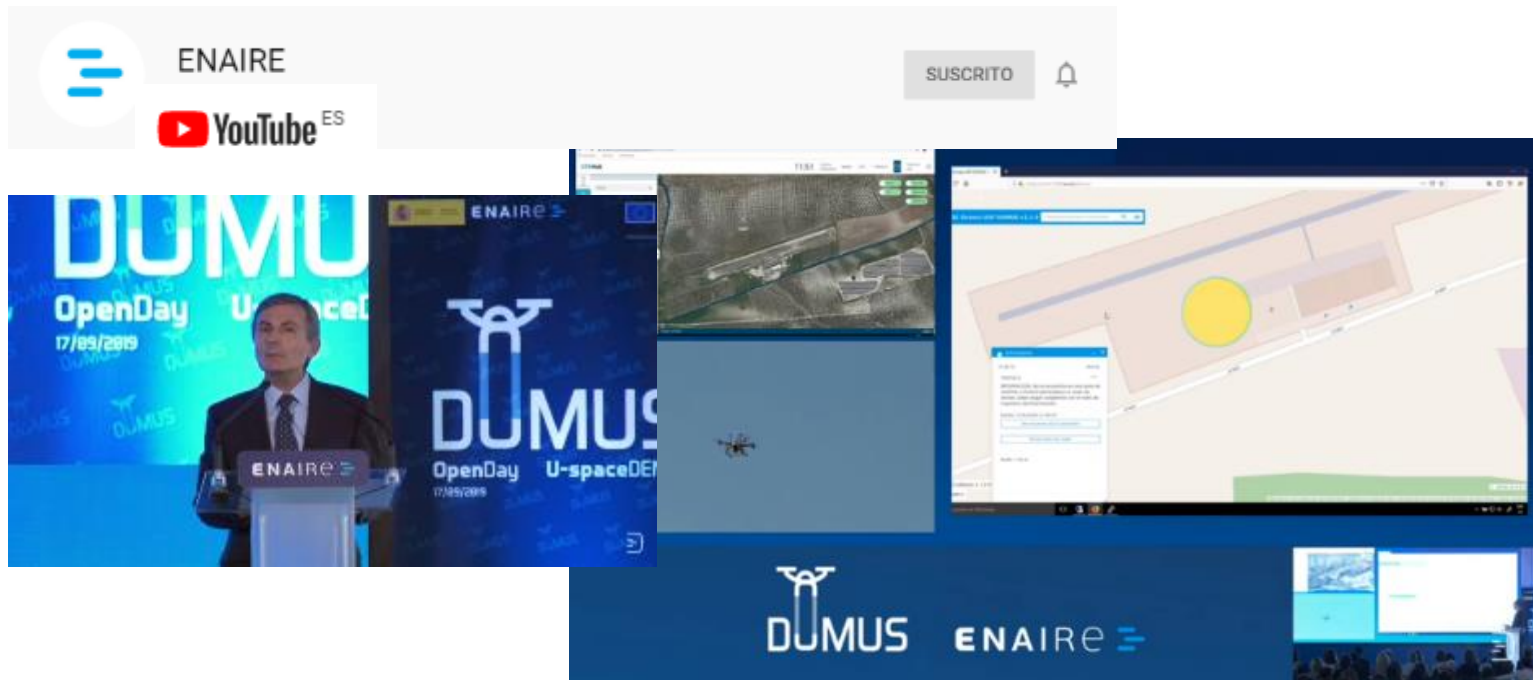
- DOMUS functionalities for ATC/U-Space interface:
  - U-Space → ATM case: drone surveillance & alerting data to ATC, operator info
  - ATM → U-Space case: surveillance data & creation of geofencing an area for emergency + AIM.
- DOMUS has proved that drones can collaboratively work **without being noticed by ATC** if it is not necessary from a safety and operational efficiency point of view.
 

**In case of alert** or infringement the drones will automatically be **displayed in ATC systems**, guaranteeing the situational awareness
- Minimum changes in ATM are required:
  - **UTM** is seen as an **external surveillance provider**
  - **CWP** is **slightly modified** to display and filter the information
  - **U-space HMI added** to geofence

## CONCLUSIONS

- ATC does need:
  - Ecosystem Manager acts as a **single point of entrance**
  - Ecosystem Manager acts **as single point of truth** ensuring:
    - Integrity of data exchanged; and
    - Data processing is made up to the quality levels as necessary to interact with ATC
  - Ecosystem Manager platform is designed and developed to **be interoperable with ATC like system** so minimum changes are needed in ATM side to collaborative dialogue

# DOMUS Information



Trial 1: Emergency Delivery & Tactical Deconfliction [https://youtu.be/\\_PW6tm0fNCs](https://youtu.be/_PW6tm0fNCs)  
 Trial 2: Emergency Situation & ATM Collaborative Interface <https://youtu.be/QFolkj0XD58>  
 Trial 3: DOMUS Technical Explanation & U-space Urban Scenario with Smart City Platform  
[https://youtu.be/DJcxm\\_4-eBc](https://youtu.be/DJcxm_4-eBc)

Other DOMUS links:

- Demonstration (Short Video) held on 17th September <https://youtu.be/XcKks9oqVn8>
- Demonstration (Short Video) held on 18th July <https://youtu.be/PhXppPBsMac>

# Thank you very much!!

DOMUS Project

