



# PriMO-5G: smart firefighting with immersive videos through 5G

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# PriMO-5G project goal and Objectives

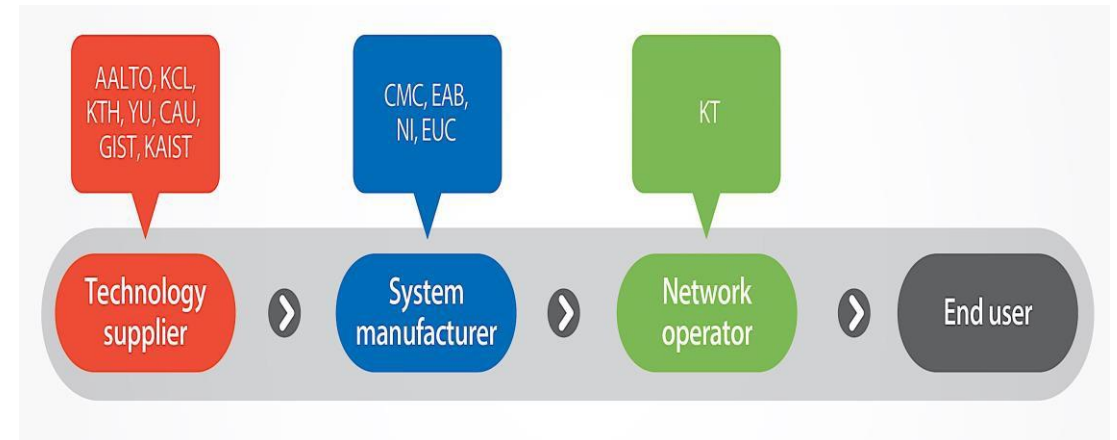
- Goal
  - To demonstrate an *end to end 5G system providing immersive video services for moving objects*. This will be done by *cross-continental testbeds* that integrate radio access and core networks developed by different PriMO-5G project partners.
- Objectives
  - **Objective 1:** To demonstrate an end to end 5G system providing immersive video services for moving objects
  - **Objective 2:** To develop technologies of mmWave access, 5G core networks, and AI assisted communications fulfilling requirements for Objective 1
  - **Objective 3:** Input to 5G standardization and spectrum regulation activities

Source: <https://primo-5g.eu/>

## EUROPEAN PARTNERS



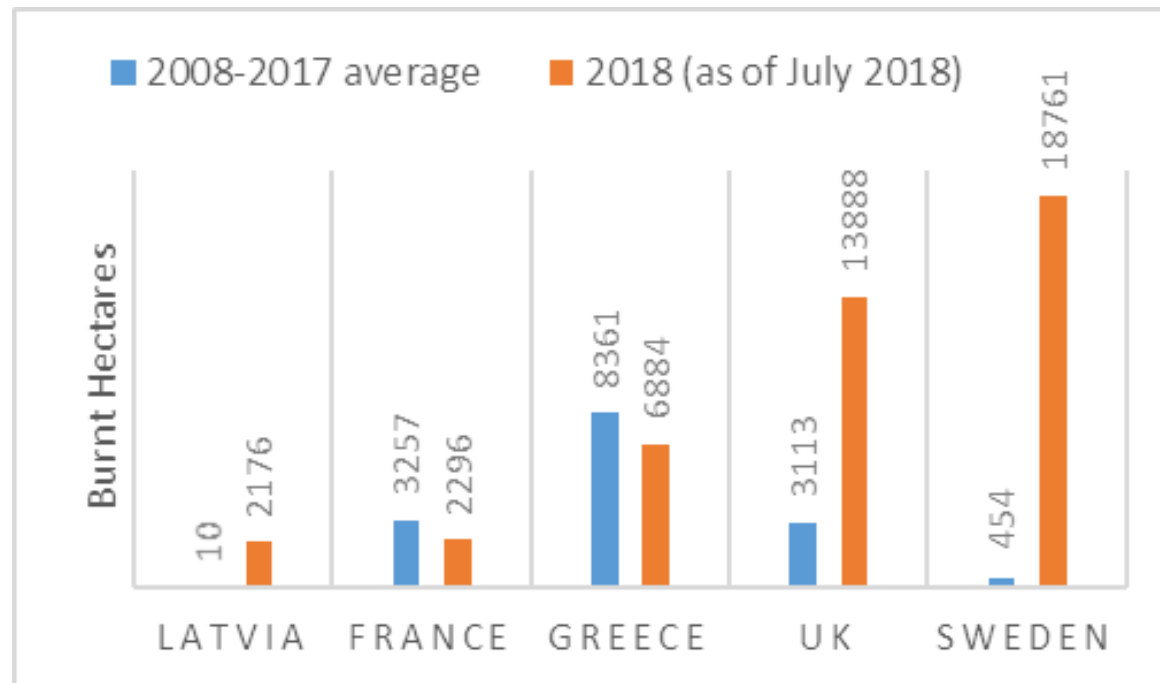
## KOREAN PARTNERS



**Value chain of 5G industry and the representation by PriMO-5G consortium**

# Fires are a growing challenge

- Estimated burnt land hectares in European countries



Source: European Forest Fire Information System (EFFIS) of the European Commission Joint Research Centre, <http://effis.jrc.ec.europa.eu>

# Public safety requirements

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First responders need

Reliable voice and data communications

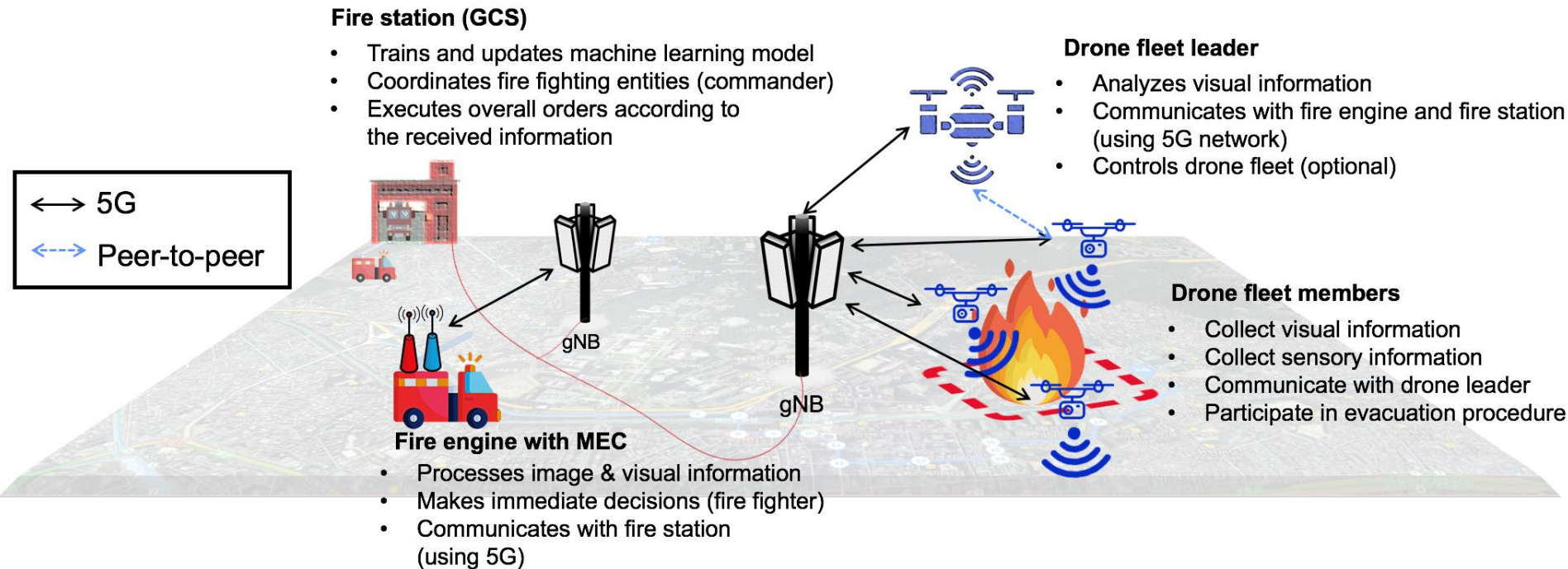
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Quick situational awareness

# We envisage smart firefighting with 5G

- Immersive videos with drones can improve the safety and efficiency of firefighting operations

- Usage of drones
  - Preparatory actions
  - Visual information
  - Sensory information



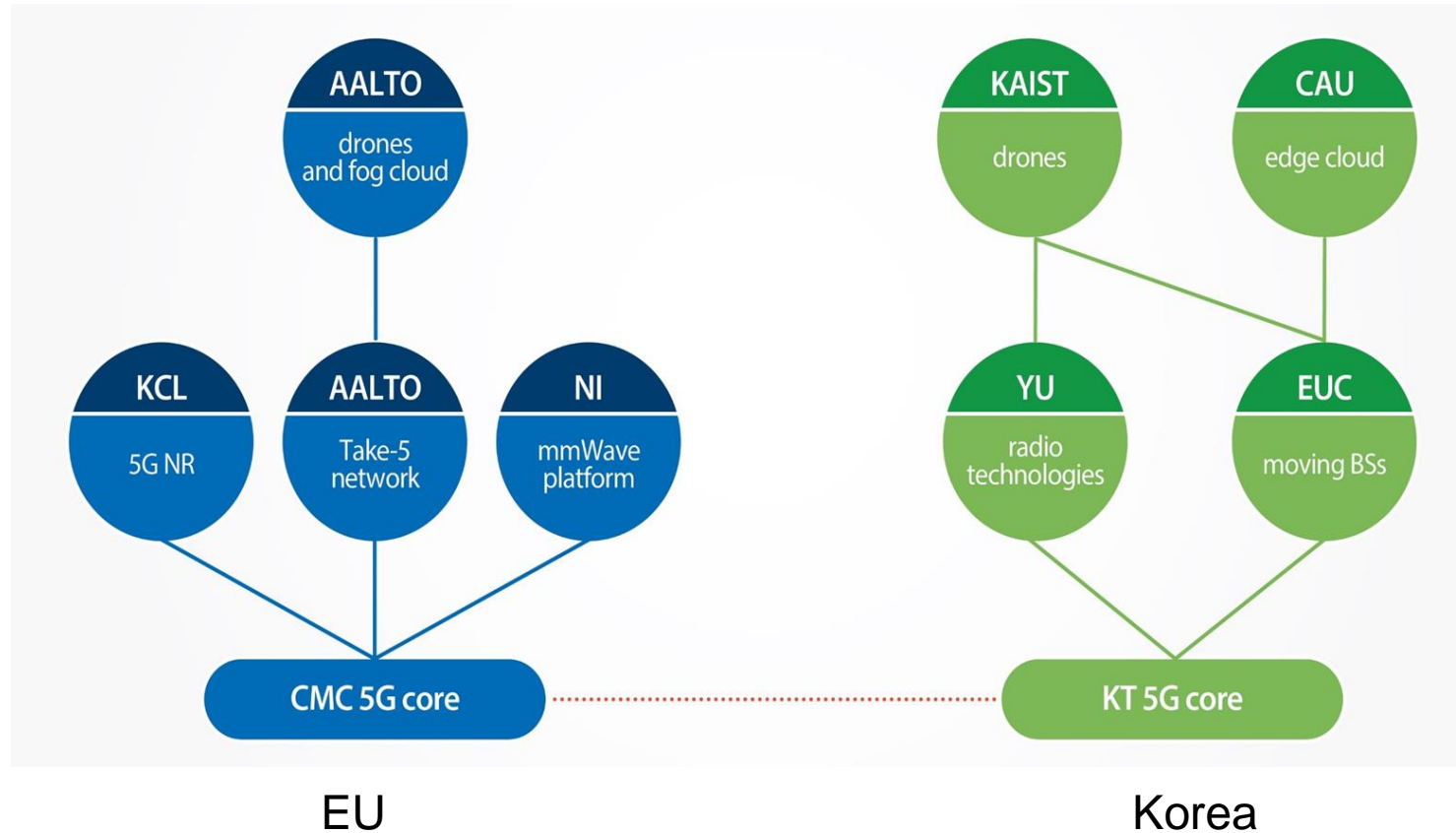
Source: PriMO-5G Deliverable D1.1, PriMO-5G Use Case Scenarios, <https://primo-5g.eu/project-outcomes/deliverables/>



# Research challenges

- Maintaining reliable high data-rate link in a dynamic environment
- Trade-offs between communication latency and computing power
- Network Slicing
- Dynamic Fleet Control and Task Type Assignment
- AI Assistance
- Regulation on radio spectrum and drone operation

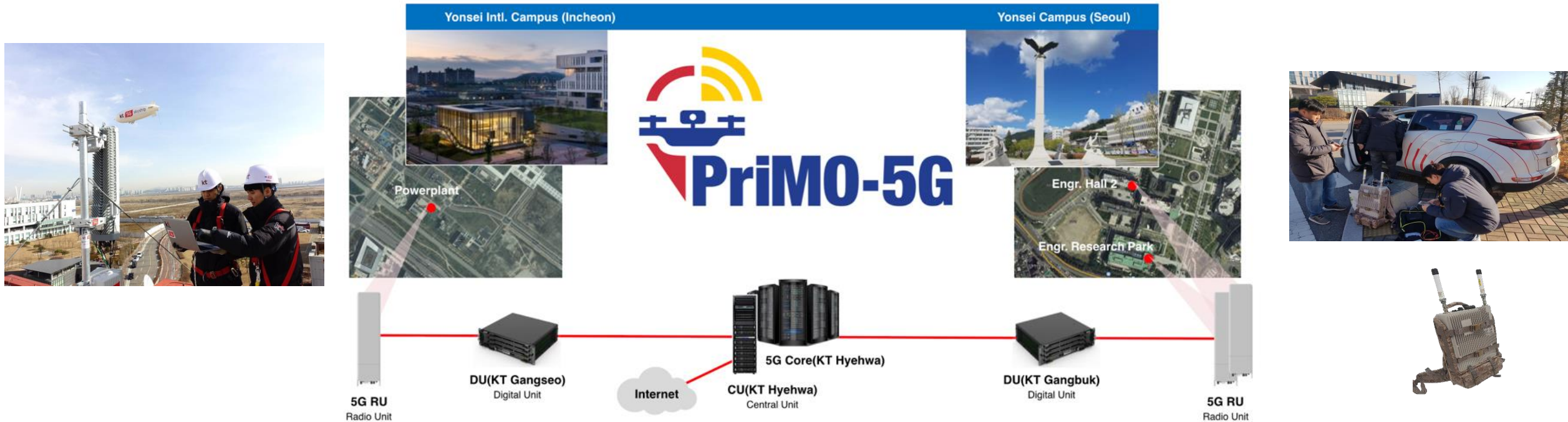
# PriMO-5G Testbed Components



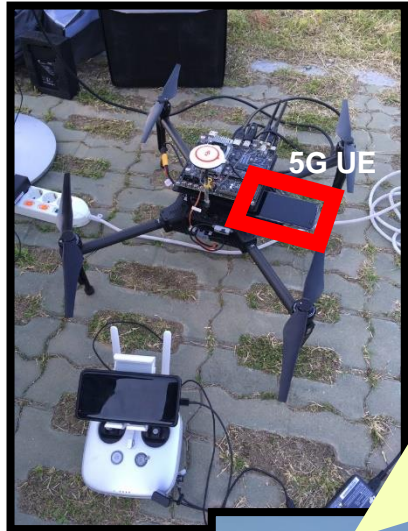


# Demonstration activities

- 5G base station in Incheon & ground station in Seoul, Korea



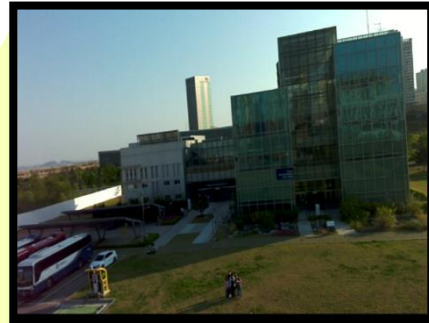
# Demonstration activities



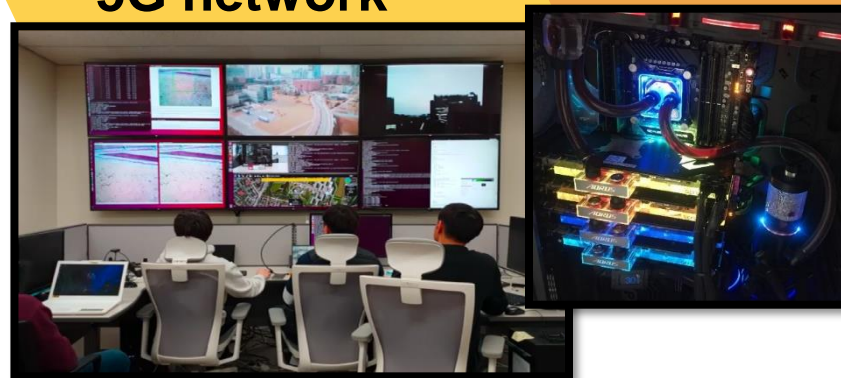
Drone System in Incheon



FHD  
(1920x1080)  
60fps  
video



Incheon → Seoul  
(GCS)  
5G network



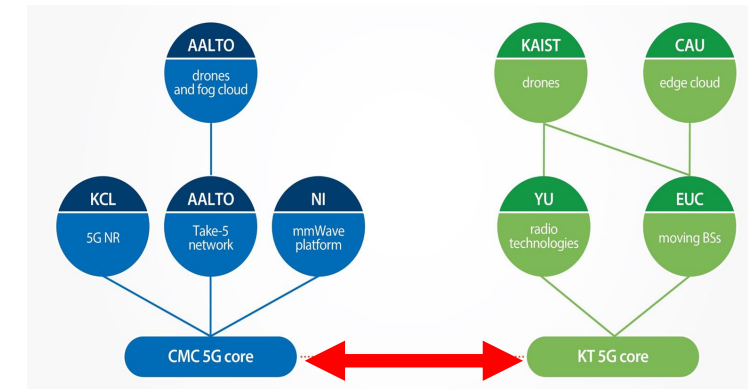
Deep-learning based  
Object detection  
& Super-resolution





# EU-KR collaboration

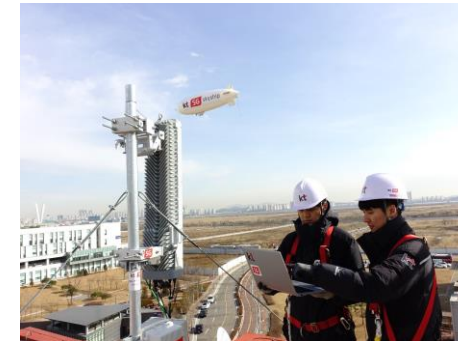
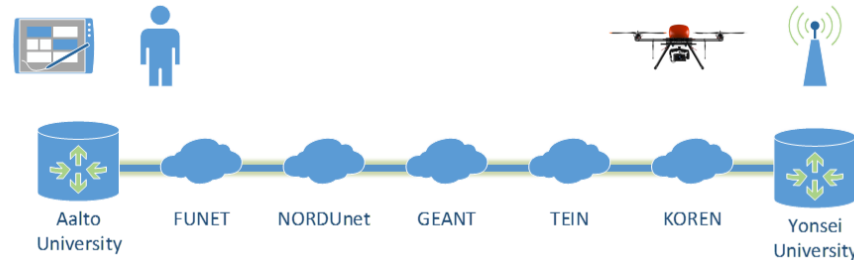
- Collaboration for inter-continental testbed



## Aalto 5G network is directly connected to Yonsei University – Korea Telecom 5G Open network



Aalto 5G network



5G OPEN network



<https://primo-5g.eu/>



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[@PriMO5G](https://twitter.com/PriMO5G)



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Thank you!

