



FROM INNOVATION TO SOLUTION

# Drones Outlook Study



founding members

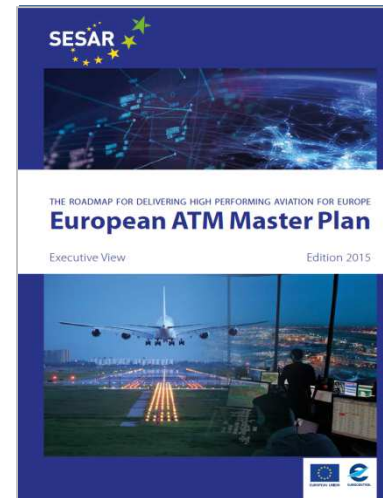


EUROPEAN UNION



EUROCONTROL

# Connecting the dots



- Why we need to act
- What needs to be done
- When it needs to be done

**THE MASTER PLAN DEFINES THE PRIORITIES FOR EU FUNDING**

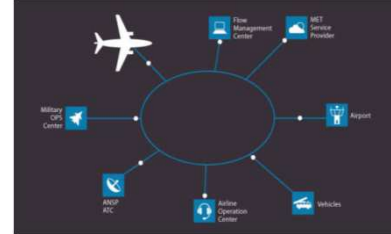
# Safe integration of Drones a new priority for SESAR

## Automation of routine tasks



Automation and use of data communication to ease controllers & support staff workload

## Integrated systems



Lean and modular systems, easily upgradable and interoperable

## Integration of all vehicles



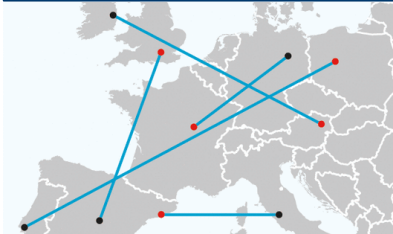
All air vehicles fully integrated in ATM environment (incl. RPAS)

## Sharing of information



Information shared digitally via common information platform

## Flight-centric operations



Air users fly their preferred, more direct route in a flow and network context

## Virtualization



Virtualization allowing dynamic capacity management



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# Where do we stand today?

2014/2015

First activities



- First Demonstration Activities across Europe
- RPAS Definition Phase

2015

Update of the ATM Master Plan



- Formally recognize as a priority for SESAR/SES moving forward

2016

Launch of SESAR 2020

- Inject additional funding for R&D on prioritized areas

THE BUILDING BLOCK ARE NOW IN PLACE IN SESAR/SES

# What are we still missing to go further?



- A long term outlook for Drones and its applications in society/industry
- A comprehensive sizing exercise or related R&D areas identifying any gaps in on-going R&D efforts across Europe
- Impact on EU economy and society ...

**DRONES OUTLOOK STUDY RESULTS SOON TO BE ANNOUNCED**

# Why we need to act

PREVIEW

- **The 'hype' appears real:** drones create value for many government & commercial users in expanding on the growth already occurring in defence and leisure
- **Significant value at-stake** in Europe with potential for multi-billion production and service industries over the long-term
- **Immediate actions** remain to secure value for Europe, especially with markets like the US and China investing much more

SIGNIFICANT VALUE AT STAKE BUT EUROPE LAGGING BEHIND

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# Need for safe integration in all classes of airspace

## Controlled airspace

*Manned aviation in controlled airspace*

Hrs	~33M
Kms	~20B

Unmanned aviation in controlled airspace

Hrs	~7M
Kms	~4B

## Controlled + Uncontrolled

*Manned aviation often in uncontrolled airspace*

Hrs	~2M
Kms	~0.6B

Long endurance surveying & monitoring

Hrs	<0.1M
Kms	<0.1B



## Very low level "VLL" airspace (initially at 150m or 500 ft)

Densely populated usage

Hrs	~250M
Kms	~15B

Remote infrastructure & rural usage

Hrs	~20M
Kms	~1B

Leisure usage

Hrs	~80M
Kms	~1B

Protected Sites



**MOST PRESSING NEED IS ON INTEGRATION IN VERY LOW LEVEL AIRSPACE**

## To summarize

- Integration is a priority for Europe
- Update of the European ATM Master Plan reflects this new priority for aviation
- As a consequence, additional SESAR funding will be injected from 2016
- Outcome of Drones Outlook Study to further inform future EU decision making





# Towards Drone Integration in the European Aviation System



*Thank you!*

