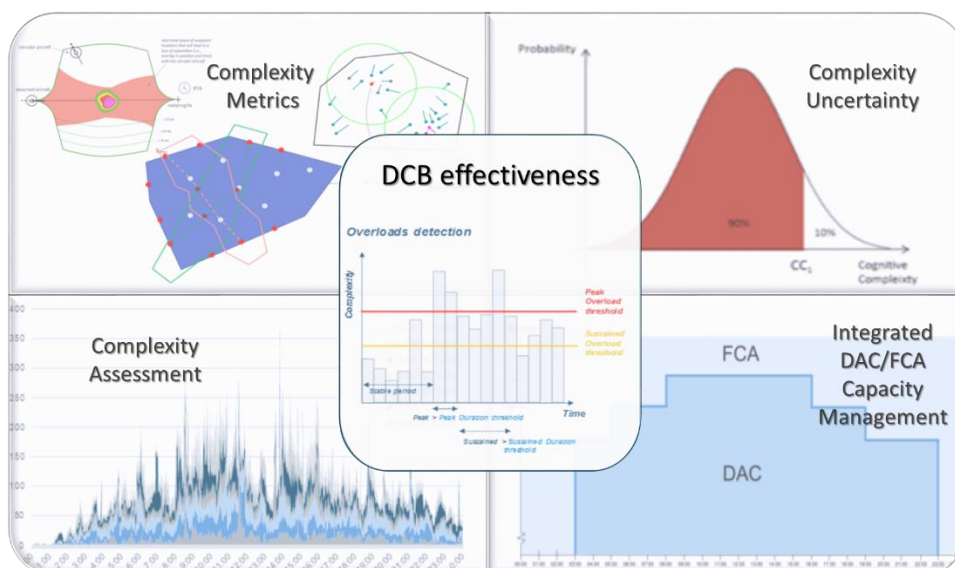


# COTTON

# FINAL WORKSHOP

## Capacity Optimisation in Trajectory based Operations

2<sup>ND</sup> OF DECEMBER 2019  
 NATIONAL CENTRE OF SCIENTIFIC RESEARCH (NCSR)  
 "DEMOKRITOS"  
 ATHENS, GREECE



## Project Overview

COTTON builds an integrated view of future **Capacity Management** (CM) processes by exploring how complexity assessment can help *Dynamic Airspace Configuration* (DAC) and *Flight Centric ATC* (FCA) and their integration, taking advantage of the trajectory information that is available in a Trajectory Based Operations (TBO) environment.

To achieve its objective, COTTON has assessed the suitability of the available **complexity metrics** to support DAC, FCA, and integrated DAC/FCA CM process. From the result of this assessment, COTTON has selected three candidate complexity metrics, namely **Solution Space**, **Cognitive Complexity** and **Geometrical Complexity**. It has evolved their mathematical formulation; and developed complexity-based methods to assess capacity in DAC and FCA.

COTTON proposes a complementary use of these three enhanced complexity metrics to build COTTON Complexity Assessment, which is flexible enough to support each CM sub-process; with the due granularity to address the specificities of DAC and FCA airspaces; and **effective at each planning phase**.

The development and integration of COTTON Complexity Assessment within the CM processes constitutes COTTON Enhanced Capacity Management, whose potential benefits are assessed in COTTON validation. The validation encompasses three exercises using fast time simulations for the evaluation of the COTTON solutions performance in the areas of: Feasibility, Capacity, Cost-efficiency, Safety and Human Performance.

## Workshop Objectives

- Assess COTTON results ensuring the fulfillment of stakeholders needs.
- Identify further research and exploitation routes of COTTON outputs in Industrial Research projects.

Specifically, the following project outcomes will be analysed:

- COTTON Enhanced Complexity Metrics, which better support DAC and FCA processes.
- COTTON Probabilistic Complexity for Capacity Management in ATM.
- Integration of Demand Uncertainty within Capacity Management.
- Enhanced COTTON Complexity Management to support integrated DAC/ FCA processes.

## Agenda

Time	Topic	
10:00 – 10:10	Welcome and Introduction	
		CRIDA
10:10 – 10:30	COTTON as a whole	
		CRIDA
10:30 – 11:00	Enhanced Complexity Metrics to support Future Capacity Management	
		ENAC/UPM
Coffee break		
11:20 – 11:50	Enhanced Capacity Management Processes in DAC/FCA supported by Probabilistic Complexity	
		ECTL/DLR
11:50 – 12:20	Project Results and Group Activity Introduction	
		CRIDA
Lunch break		
13:20 – 14:10	<b>COTTON Complexity Assessment in DAC</b>	
	<b>Group Activity A</b> – Selection DAC optimal configuration. In the short term based on Cognitive Complexity	Group A: CRIDA
	<b>Group Activity B</b> – Selection DAC optimal configuration in the medium term based on Geometric Complexity	Group B: ECTL
Break		
14:20 – 15:10	<b>COTTON Complexity Assessment in FCA</b>	
	<b>Group Activity C</b> – FCA traffic allocation in the short term based on Geometric Complexity	Group C: DLR
	<b>Group Activity D</b> –Solution Space Demo	TUD
15:10 – 15:35	<b>COTTON Complexity Assessment in integrated DAC/FCA</b>	
	<b>Group Activity E</b> – DAC FCA delineation based on COTTON complexity	Group E: ECTL
15:35 – 16:00	<b>Wrap-up</b>	
		UPM/CRIDA
End of Workshop		