Workshop Title	Data Driven ATM: Going Digital!		
Meeting date	08/03/2018	Start	10:00
	08/03/2018	End	13:30
Objectives	Describe the state of the art and identify the areas of interest and the key technologies that will need to be developed in the future, regarding the use of Big Data techniques in the Air Traffic Management area		
Location	WORLD ATM CONGRESS 2018: Nokia ATM Theatre (WAC-2018) Madrid		
Host	UPM		
Organizer	Nicolas Suarez nstetzlaff@e-crida.enaire.es		
Agenda			

1	10:00 - 10:30	**Introduction and welcome: SJU & UPM** • SJU Digitalization Vision [SJU]
	10:30 – 12:15	***The state of the art of Big Data research in ATM*** *By the end of this **session,** participants will be able to **recognize** what has been achieved and which techniques are used in the **ATM research domain.** Four projects will be presented DART, COPTRA, UPM, BigData4ATM and MALORCA.*
	12:15 – 13:30	***Panel*** By the end of this **panel**, participants will be able to **identify** the areas of interest of key ATM actors, as well as the key technologies that will need to be developed in the **Big Data in ATM domain**. Panellists will make a short exposition of their point of view, followed by a discussion. Confirmed participants include CANSO, IATA, AIRBUS, BOEING, the Fraunhofer Institute and the UPM
	13:30 – 13:45	***Summary & Conclusions*** *CRIDA*

Founding Members

Background:

The collection and exploitation of "Big Data" is not new. The coming into existence of new data collection mechanisms based on digital devices, enhanced storage capacity and computing power as well as enhanced sensing and communication technologies enable near real-time use and transmission of massive amounts of data. Never before has so much timely information about events, people and objects been so widely and quickly available.

The quantity and diversity of the available data is being used to improve the performance of the ATM system, its safety, efficiency and security. We use it to manage demand and capacity, identify potential conflicts, enhance service provision, and to reduce environmental impact. Data is increasingly significant in the management and use of ATM systems.

There are typically four Big Data processes: data acquisition, processing, aggregation and analysis.

- Data acquisition relates to the collection of data from specific sources e.g. trajectory data, arrival and departure transaction data. This data is characterized by its high volume and its lack of structure.
- Data processing involves cleansing (e.g. anonymization), the application of unique IDs to records and identification of errors. Clean data from multiple data sources is then made available for aggregation.
- Big data aggregation is achieved by organising and processing data from disparate sources providing unstructured and structured data to a structured state. For example, trajectories are used to establish characteristics of air traffic, such as sector occupancy, which is used to establish congestion or delay data. Aircraft departure data is used to predict delays.
- Analysis tasks use advanced methods to exploit data so as to advance predictability, situation awareness, decision making and planning. This might be a dashboard of progress, performance and predictions. For an aircraft it might concern the expected arrival time to an airport.

In this context, the SJU has financed several projects that address different problems and aspects of Big Data research and development within the ATM domain.

The Workshop

The workshop will describe the state of the art and identify the areas of interest and key technologies that are needed to be developed in the future, regarding the use of Big Data techniques in the Air Traffic Management area.

It will have two distinct sections. The first one will consist of a set of short presentations describing the state of the art of Big Data research in ATM, whilst the second one will run a Panel that combines operational and technical experts.

The objective of the first session is to allow the workshop participants to recognize what has been achieved and which techniques are currently used in the ATM research domain. Three projects sponsored by the SESAR Exploratory Research programme will presents their research in this area: COPTRA (http://coptra.eu/), DART (http://dart-research.eu/) and BigData4ATM (https://www.bigdata4atm.eu/) and MALORCA (http://www.malorca-project.de/). A presentation performed by the Technical University of Madrid (UPM - http://www.upm.es/), will provide additional insight into applied Big Data research.

The Panel aims to identify the areas of interest of key ATM actors, as well the technologies that are needed to be developed in the Big Data in the ATM domain. Amongst the panellists you will find representatives from CANSO, IATA, Airbus, Boeing, the Fraunhofer Institute and the UPM. The panel will be moderated by CRIDA.