Drones Beyond.

Rationale of the event «Drones Beyond 2022»
Date: 17th-18th November 2022
Location: Fiera del Levante, Bari

Under the patronage of:

With the support of:

Advanced Air Mobility requires territories, cities and citizens to prepare for change driven by new forms of transportation of goods and people and innovative services (observation, monitoring, etc.) using autonomous air vehicles.

In this context, citizens, institutions and industries are the main players in a sector that is providing a strong impetus for research and technological development, while becoming, as the markets involved grow, an important and attractive ground for economic development. For the aerospace world, specifically, and for the citizens in general, new and interesting development prospects are opening up in the use of aerial systems without pilot on board (today "drones," tomorrow autonomous aerial systems) that will affect many areas of human activity (transportation, observation of territories and related phenomena, health, agriculture, aerial work, etc.).

Drones Beyond 2022 aims to be a moment to present challenges, products, and solutions of UAM (Urban Air Mobility), to provide:

- an indication of the state of development of **technologies** and **applications**;
- a contribution to the action of learning about the capabilities and benefits that these technologies can generate, encouraging their **acceptance** and **sharing**;
- an acceleration of real-world experimentation necessary to break down the remaining barriers to their full use.

UAM thus is not only an element of the advancement of aviation and mobility technologies, but primarily a process to support mobility planning and urban development. If UAM can play a leading role in shaping **urban innovations** and **sustainable transition strategies**, it is necessary to understand how it should be integrated into urban mobility planning, or, in more practical terms, what role it could play in existing or planned urban transportation systems.

The idea behind "**Drones Beyond**" is to support and accompany the industrial, scientific, economic, and financial efforts of the aviation community by relating them to the need for creating solutions that can be integrated into the future of cities and communities.

The initiatives so far conducted by DTA unfold on both the suburban (Grottaglie airport) and urban (city of Bari) dimensions with the aim of presenting the two areas as an integrated range for the experimentation of new Advanced Air Mobility solutions.

The initiative is therefore included in the long-term development framework of an integrated infrastructure between Grottaglie and Bari, that could generate over time a connection between the two nodes through a future "**experimental drone highway.**"

The first edition of DTA's "**Drones Beyond**" project took place in September 2021 at the Grottaglie Airport, as part of the MAM 2021 international event.

"**Drones Beyond. 2021 Operations**" presented concrete examples of currently feasible solutions in a real operational environment, namely the Grottaglie airport and surrounding grounds.

The demonstrations covered various fields, from the presentation of new technologies to the exhibition of solutions that integrate their capabilities in different application areas (manned and unmanned aircraft, satellite and ground observation and data acquisition systems, sensor systems, etc.).

DTA , the **Municipality of Bari**, and the **Regione Puglia**, as part of the "Bari Open Innovation Hub" project, funded by the Ministry of Economic Development and the Fund for Development and Cohesion through the "House of Emerging Technologies" call, of which **ENAC** is a key partner, are now organizing **Drones Beyond 2022**.

The initiative, supported by, among others, **UIC2** (Urban-Air-Mobility Initiative Cities Community) and **EU Network of U-space Stakeholders**, also includes the participation of representatives from the European Commission, Italian institutions, European regulators and agencies, European municipalities and numerous companies, including **TIM**, **Exprivia** and **AMT Services**, as partners in the "Bari Open Innovation Hub" project.

The main objective of the event is to present, in the metropolitan city of Bari, proposals and demonstrations of technological solutions and architectures (**sand boxes, vertiports, vertipads**), operational and usage concepts (**CONOPS, CONUSE**), missions and services (**delivery flight operations, monitoring, observation**) able to develop interest in experimenting with new technologies and operational protocols, with particular reference to the topic of autonomous and semiautonomous driving, the use of next-generation communication and navigation technologies (**5G, multilateration, satellite**), with the help of Data Science for data acquisition and manipulation (**IoT, Cloud, AI, Deep Learning**) and solution development (**Situational Awareness** concept), in a perspective that sees Bari as a living lab at the urban/metropolitan scale.

The event includes the involvement of various operators, who will carry out demonstrations of UAM technologies and services in different operational scenarios, as well as other national and international players that will be present at the conferences and static exhibition, with the hope of engaging and inspiring businesses and the new generations.

The DTA, since 2018, has promoted, coordinated and participated in several research and innovation projects, gaining expertise and experience in the field of UAS and Advanced Air Mobility.

The **SAPERE** and **Bari Open Innovation Hub** projects pay special attention to UAM applications and services for smart cities; the **RPASinAir** project focuses on the integration of UAS in ATM; **ECARO**, **U-space²** and **AURORA** deal with the design, certification and performance analysis of PNT devices in autonomous flight conditions, and their application in UAM services.

DTA has also developed knowledge frameworks in the areas of technology, operations, regulatory, concepts of use and operations (CONOPS, CONUSE) and policy for UAM development in the **ASSURED-UAM**, **CORUS XUAM** and **4S USER STUDY** projects, as well as the main aspects related to cybersecurity of UAS in **CRUISE**. In addition, DTA has expressed interest in fields of UAS deployment in out-of-town context, such as precision agriculture in the **TEBAKA** and **REDOX** projects.

Drones Beyond 2022: outline

Title: DRONES BEYOND 2022 "Urban Air Mobility – Evolutions and perspectives"

Topic: URBAN AIR MOBILITY using SMALL/MEDIUM UAS

Conventions on Urban Mobility that will cover the following topics:

- The state of the art of UAM development in Europe
- The future of cities and the new planning and development needs in light of new forms of mobility
- Enterprises, technologies and services for the smart city
- Unmanned Aerial Vehicles: opportunities for talents and young entrepreneurs

Demonstrations of operational missions in urban and metropolitan areas

- Demonstrations of sensors and payloads deployments
- Piloted and automated flights
- Single flights and multiplatform/swarm flights
- Airspace management (geo-fencing, anti-drone, Present Position Control, cooperating/non-cooperating platforms) and coordination with ENAV/D-Flight control (UTM) and with ATZ (ATM/UTM integration)

Services represented by demonstration missions carried out in the Fiera del Levante area (live during the day)

- Surveillance (Fiera del Levante perimeter, roads and fair environment)
- Delivery (Hub to Hub, Hub to road, road to road)

Services represented by demonstration missions carried out in urban/metropolitan area (live/recorded in daytime and/or nighttime environment)

- Harbor basin surveillance (indoor/outdoor)
- Sea/coastal surveillance
- Observations in the city (with penetration on canals)
- Environmental observations
- Door-to-door delivery
- Multiplatform delivery (air+land/marine)
- Short- and/or long-range delivery

For more information: eventi@dtascarl.it

DTA website: www.dtascarl.org

Follow us on:

DTA
Drones Beyond.