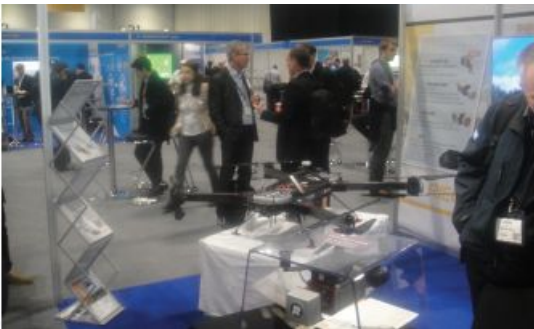# Covering all Sectors - Commercial UAV Show 2017

The Commercial UAV Show was held this year at the Excel in London and comprised a conference with around 60 speakers, seminars given by companies and an exhibition which attracted almost 100 exhibitors. The topics covered in the conference ranged from mapping to media.

The main trends to emerge from the conference and the exhibition were the increasing maturity of the drone business, the wide range of applications, although with particular interest in a limited range, an increasing interest in artificial intelligence (AI) and machine learning, and an all embracing interest in regulation.

The drones themselves formed a large part of the exhibition and ranged from tiny platforms to large ones with up to 2-3m wingspan which come in many shapes and configurations, although the most popular are the multicopters. The familiar products from Topcon, Riegl and SensFly were much in evidence. The Wingstra vertical take-off and landing fixed wing model was an interesting newcomer. The most innovative UAV was the Airbus Zephyr, a lightweight solar-powered UAV designed to operate at 20,000m, originally designed and built by QinetiQ.

Apart from military application, the commercial applications were given as: infrastructure 36%, agriculture 26%, transport 10%, security and safety 8%, media and entertainment 7%, insurance 5%, telecommunications 5%, and mining 3%. Mapping using photogrammetry and laser scanning is mainly included in infrastructure although it does feature in most categories. Inspection, again in all categories, is another prime activity. We also see companies like SenseFly and Pix4G offering specialist software in construction, mapping and agriculture, the latter with multispectral data and image processing, thermal imaging, large area coverage, and output that is interoperable with farm machinery. Carlson offer software designed for topo mapping, hydrological analysis and mining.

AI and machine learning are seen as 'early days automation'. One example of this was Hydro Fusion Tools from Lockheed Martin which generates 3D point clouds and imagery in real time allowing an operator to command the drone to collect new images with different resolution or orientation when necessary. Pix4D provides classification of urban scenes using a 3D model and multispectral data.

In the exhibition, several companies were offering consultancy and 'Drones as a service' (DAAS). There were universities offering research and consultancy and organisations providing training in drone operation. Of particular interest was an EU funded consortium called MarineUAS which has projects using drones for marine-related research.

Other exhibitors of interest were those offering tools and hardware for navigation including flight planning and GNSS optimisation software, allowing navigation simulation where GNSS signals may not be reliable. Camera manufacturers and vendors were not much in evidence.

The conference included presentations on applications such as traffic management, law enforcement, communication, emergency management, the oil industry There was also talk of the future of drones and of course regulation, including how to counter the misuse of drones. Most papers concentrating on mapping came in the infrastructure session. Ravi Kuganathan gave an interesting presentation on using a drone in Crossrail tunnels using GPS repeaters and emphasised the value of doing this for dilapidation surveys, high-level visual inspection and progress reporting. Although problems of line of sight and flying over buildings were not a problem in tunnels there are still health and safety regulations to consider relating to fire risk and overhead constructions. He also discussed the issues of whether to use 3rd party companies or in-house engineers and in fact went for the latter provided staff were well trained.

James Dunthorne of Plowman Craven talked about Vogel R3D (see Nov/Dec issue). Charbel Aoun from the Future Cities Catapult gave a presentation on Smart Cities and the Internet of Things. He again stressed that a major problem was regulation, but suggested that the problems were less for mapping and went on to concentrate on using drones for deliveries and traffic management. Other talks covered the problem of 'the last mile' for delivering health products in Africa, and emergency response.

The messages for geospatial surveyors to take away from the show are that there are many advantages is using drones, giving savings in cost and time and a great potential in extending the range of services through partnerships with other professions such as the emergency services, farming and insurance. However, a good knowledge of the regulations is essential as is training and experience in piloting the drone. It seems to be expected that the regulations will become simpler and that the introduction of autonomous drones and AI will provide further support. It is also important to follow government announcements as regulations are likely to change in the not too distance future, and there will also be swarms of drones operating.

This article was published in Geomatics World January/February 2018

https://www.gim-international.com/content/article/covering-all-sectors-commercial-uav-show-2017