Roadmap(s) towards certification of UAM automated / autonomous operations

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Short bio

Michel Gaubert, now retired, graduated from ISAE-ENSMA (Poitiers) and was working as aeronautical engineer at Airbus Helicopters from 1981 to 2021. After various positions held in helicopter rotors aeromechanics, engine installation and powerplant, he moved to the Airworthiness Department in 2000 where he was particularly involved in Aircraft Certification and Air Operations Regulations as Senior Expert Airworthiness. From 2006 he was a member of various rulemaking groups at EASA, then started to focus on UAS/RPAS/eVTOL regulations in 2014. During the last years of his career, he was the EASA Certification Focal Point for the Airbus UAM eVTOL Project and contributed in the EASA UAM Air Operations Regulation Rulemaking Group and in the ICAO RPAS Panel. Michel has been also Trainer in Helicopter Airworthiness and Certification at EUROSAE Training Center (Paris) and at ENAC Engineer School (Montpellier).

Abstract

The ultimate development of UAM will be based on autonomous operations where the machine performs functions with no human intervention. Enabling these operations will rely on the certification of autonomous airborne systems also called Artificial Intelligence (AI) or Machine Learning (ML). There are many stakes and issues to be solved in order to reach a trustworthy AI, one of which is that traditional development assurance methods are not adapted to non-deterministic systems where there are an infinite number of pathways to produce the desired output. This presentation highlights some current main stakes and issues of AI and presents key considerations and RoadMap(s) to be taken for its certification, the main one described being the EASA AI RoadMap.