

27 Leading Research Institutions, represented by IFAR Chair Ibrahim Yimer, hand over Scientific Assessment for Urban Air Mobility to the International Civil Aviation Organization (ICAO)

“This new ICAO-IFAR agreement will be transformative in permitting the research community to participate in a more dynamic and effective manner with ICAO,” remarked¹



ICAO Secretary General Juan Carlos Salazar in April 2022 when signing the Memorandum of Understanding with IFAR. Close to the first anniversary of the excellent collaboration, ICAO invited IFAR to attend an informal Council Briefing on March 21, 2023 in Montréal.

The occasion: 80 international scientists have worked for more than 2 years –

coordinated by DLR, NASA and NRC Canada- on a Scientific Assessment for Urban Air Mobility, which has been presented to the ICAO Council. As an independent scientific statement from 27 of the world's leading aeronautics research institutions, the document has been welcomed by ICAO. It will be used as one of the reference document by the newly established ICAO Advanced Air Mobility Study Group (AAM SG).

The document highlights the need for further international assessments on economic and societal factors associated with UAM, common understanding of the extent to which the nascent industry can leverage current infrastructure and regulatory structures, and harmonization of industrywide terminology. Further scientific key takeaways include: the need for further studies of the impact of autonomous systems on the industry; infrastructure requirements (including vertiports and weather sensing) to support the industry; and data requirements (including domains such as cybersecurity, emissions, and safety) to ensure safe, scalable operations. In addition to the IFAR presentation to the ICAO Council, IFAR representatives met ICAO's Secretary General, as well as officials from ICAO.



The Scientific Assessment is available for download at: www.ifar.aero

¹Source: [ICAO and IFAR reach cooperation agreement on aviation innovation](https://www.icao.int/pressroom/2022/04/07/20220407-01), 7 April, 2022

Abstract of the IFAR UAM Scientific Assessment

Better connecting the international research community and the International Civil Aviation Organization (ICAO) enables effective assessments of novel aviation innovations. The International Forum for Aviation Research (IFAR) created a group on Urban Air Mobility (UAM) to explore the broad array of aspects relevant to the ICAO mandate. The assessment began with a study of the current industry landscape, including an overview of existing market studies, proposed aircraft designs and concepts, and potential paths of industry evolution. The Industry Assessment is summarized into key takeaways highlighting the need for international assessments on economic and societal factors associated with UAM, common understanding of the extent to which the nascent industry can leverage current infrastructure and regulatory structures, and harmonization of industrywide terminology. The subsequent Scientific Assessment, developed through cooperative efforts between international domain experts, captures 17 focus areas relevant to UAM. All focus areas present opportunities for further research. Key takeaways include: the need for further study of the impact of autonomous systems (AS) on the industry; infrastructure requirements (including vertiports and weather sensing) to support the industry; and data requirements (including domains such as cybersecurity, emissions, and safety) to ensure safe, scalable operations. Finally, a brief overview of the current standards landscape as relevant to the Scientific Assessment is presented, which displays the benefits of applying digital systems engineering techniques to map current research efforts to ongoing standards activities.



History of IFAR-ICAO collaboration²

Since signing a Declaration of Intent (DoI) in November 2020, IFAR and ICAO have been collaborating to support innovation in aviation. The DoI led to the creation of a Joint Task Force with the goal to provide ICAO, the international standard-making body for international civil aviation, with a scientific global consensus from the perspective of IFAR, on the technical challenges in implementing Urban Air Mobility (UAM). In 2021, the IFAR-ICAO Joint Task Force began drafting a UAM Scientific Assessment featuring inputs from 80 researchers from across IFAR with guidance from ICAO experts.



²[Special IFAR Event Canada - April 2022 - IFAR.AERO](#), 2 May, 2022