



**Keynote remarks  
by the Secretary General  
of the International Civil Aviation Organization,  
Dr. Fang Liu,  
for the 2020 11th Summit of the  
International Forum for Aviation Research (IFAR).**

*(5 November 2020)*

Distinguished guests,

Ladies and gentlemen,

1. It is my great honour to provide today's keynote speech to this 11<sup>th</sup> IFAR (*i-far*) Summit.
2. Before I begin, please allow me to take this opportunity to thank each of your institutions, and the many researchers within them, for the invaluable contributions that you have already made to international civil aviation.
3. As it confronts today's very challenging pandemic conditions globally, international civil aviation remains the safest, most dependable, and most versatile mode of transport.
4. By connecting all regions and nations of our world, air transport provides people with access to better living standards, food, healthcare, and education, which explains its direct and well-appreciated contributions to the vast majority of the UN Sustainable Development Goals.
5. It also aids this global development dynamic by boosting trade and commerce, which in turn generates local economic growth, job creation, and expanded local tax bases from which countries can make the critical investments required for long-term sustainable development.
6. During global events such as those we now find ourselves in the midst of, aviation also serves as a highly-relied upon vector for international emergency response and recovery.
7. When COVID-19 was identified as a global pandemic, our community was already benefitting from a coordination and response structure developed among ICAO, the WHO and other concerned countries and bodies after the SARS outbreak in 2003.

8. COVID-19, however, raised urgent new concerns in light of its extent and severity, and ICAO quickly needed to amend and adjust global norms so that regulators, operators and service providers could effectively and safely respond.
9. Passenger aircraft were rapidly repurposed to meet the large demand for cargo traffic, ensuring that food, medicine and other essential goods and personnel could continue to get to where the world needed them most.
10. And in some cases, special air services permissions needed to be set out among countries which had closed their airspace, in order to repatriate travellers, workers, and family members stranded on distant shores.
11. The extent of the global humanitarian response air travel enabled even saw our sister organization, the World Food Programme, becoming the largest airline in the world at one point.
12. Aviation's rapid response to COVID-19 also benefitted from the monitoring and coordination structure which ICAO quickly established in all world regions.
13. Another tremendous benefit was the strong foundation of international Standards and Recommended Practices (SARPs) upon which the air transport sector is built.
14. These 'SARPs' – as we call them – commit each ICAO member State to collaborate through our agency and establish the highest practicable degree of uniformity in their national regulations.
15. Countries have adopted over 12,000 of them with our agency's expert support since the first days of international flight, transforming 193 distinct and sovereign territories into a unified global network of air travel and trade.
16. This core foundation of global guidance provides us with an important starting point as we look to the future, and to how ICAO can aid countries in integrating new air transport innovations to their civic and economic benefit.
17. But we are also be challenged by the pace of innovation as never before, and this impacts not only our standards work but also the critical global strategic planning we develop for countries in the areas of aviation safety, security, and efficiency.

18. Over the past decade, for example, a major set of innovations collectively known as ‘frontier technologies’ began to impact ICAO’s work in significant ways.
19. Developments relating to autonomous aircraft, renewable power and propulsion sources, artificial intelligence, additive manufacturing, big data, blockchain, autonomous control, and many other exciting developments, are truly changing the face of aviation today.
20. They are also being generated in settings very far removed from traditional sources of aeronautical R&D, and by people with little appreciation for international aviation regulatory frameworks.
21. Recognizing the challenges they were facing, and in particular after a series of events ICAO organized to help them explore many of these new developments in greater detail, countries adopted a new resolution on ‘Innovation in Aviation’ at the 2019 ICAO Assembly.
22. The innovation resolution directs ICAO to assess and evolve our rulemaking and strategic planning mandates in order to keep better pace with the speed of change, even as we continue to safeguard and augment traditional safety, security, efficiency and sustainability performance in air transport.
23. It also encourages us to explore the strategic partnerships which will be fundamental to success in this area, such as the one we’re formalizing here today with IFAR.
24. This collaboration will see your community supporting ICAO’s activities by sharing its consensus view on current areas of technical challenge and opportunity.
25. In turn, ICAO will augment its ability to engage with and benefit from IFAR’s processes and expectations.
26. To begin with, these efforts will be focused through two new Expert Groups we’ll establish together, on *Urban Air Mobility* and *AI in Aviation*.
27. A year from now, at the 2021 IFAR Summit, each of these groups will present reports on their cooperation and outcomes, and your membership will use that advice to determine how to best engage with us on a more formal and permanent basis.

28. ICAO will be eager to learn more about how IFAR can assist and potentially accelerate our explorations into nascent technologies.
29. We also expect to help IFAR interface more effectively with aviation decision and policy makers, and I'm sure there will be many other discoveries along the way regarding new areas of mutual benefit.
30. Before I end my address, I would like you to imagine what aviation may be like 10 years from now.
31. In the first place we can expect new aircraft types to be operating with increased efficiency and in many cases much more sustainably than today.
32. This reality still requires further innovations in terms of technologies, operations, and greener aviation fuels.
33. We will also see electric aircraft operating in urban settings and on short-haul routes, or unmanned cargo flights monitored and guided through 5G connectivity.
34. This vision relies on complex communications, air traffic management, and energy density innovations for electrical storage being realized.
35. We can also expect ADS-B and other surveillance technologies to enable most aircraft occurrences to be sensed and feed into data systems with no need for manual human input.
36. Meanwhile AI applications will assist pilots and controllers with routine tasks, and suborbital flights will be a common, weekly event.
37. All of this points to many areas of common interest and mutual benefit for ICAO and IFAR going forward, and we will look forward to building this future of aviation together, and through the closer and more meaningful engagement we are establishing here today.
38. Thank you.