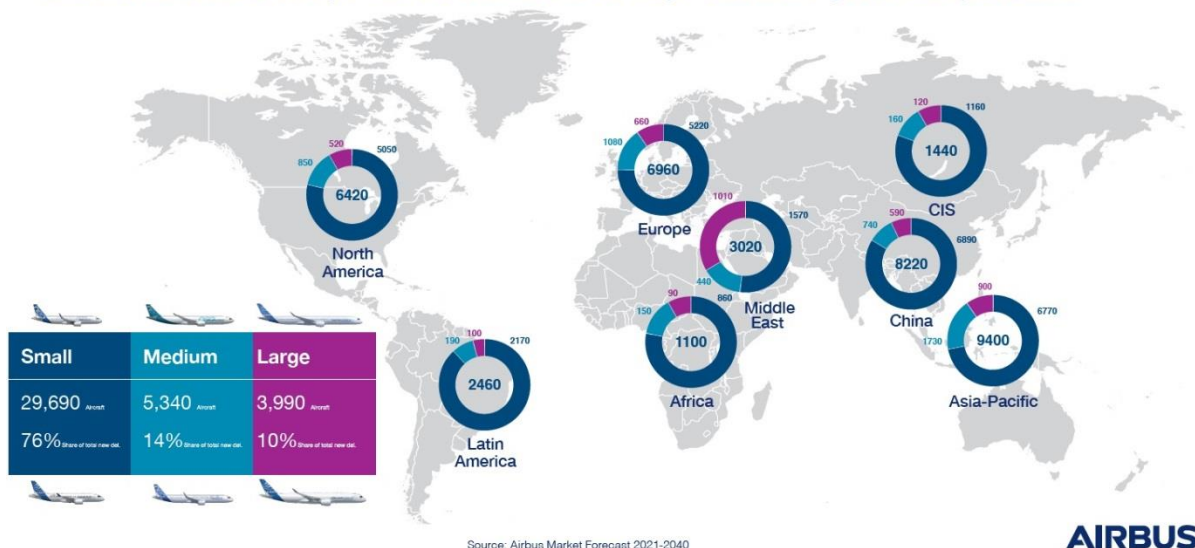


Brèves de l'industrie aérospatiale – 22 novembre 2021

Airbus Global Market Forecast 2021-2039

Commercial Aircraft demand 2021-2040

Asia-Pacific, China, Europe and US continue to be major drivers for growth & replacement



Dubai Airshow orders and letters of Intent

Airbus

410 commandes et engagement d'achats (269 fermes et 139 promesses d'achat) :

- 255 A321neos from Wizz Air, Frontier Airlines, JetSMART and Volaris (negotiations by Indigo Partners).
- 25 A220-300s, 55 A321neos, 20 A321XLRs, four A330neos and seven A350Fs (launch customer) for Air Lease Corporation.
- 20 A320neos and 8 A321neos for Jazeera Airways.
- 10 A220-300s for Nigerian airline Ibom Air.
- 2 A330 MRTT multi-role tanker transports for the UAE Ministry of Defence.
- 2 Airbus Defence & Space A400M tactical transports for Indonesia (potential to acquire four additional aircraft).

Boeing

85 commandes:

- 9 B767-300 Boeing Converted Freighters for DHL Express.
- 72 Boeing 737 MAX (737-8 and 737-8-200) for Akasa Air.
- 1 Boeing 787-7, 1 767-300F and 2 737MAXs for Air Tanzania.

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ATR

29 commandes dont:

- 4 firm and 1 optional ATR 72-600s for Binter Canarias
- 3 ATR 72-600s for Romanian Airline Tarom
- 3 ATR 72-600s for Gabonese airline Afrijet
- 2 ATR 42s for Japanese start-up Toki Air

Industrie Aérospatiale

Montana Aerospace and Asco Group (17 novembre)

Swiss-based Montana Aerospace has raised \$164 million in a stock sale with proceeds going towards the acquisition of Asco Group. The stock sale came after Montana Aerospace went public in May via an initial public offering. The purchase of Asco is subject to certain conditions.

Filière aéronautique française /nouveau plan de soutien (17 novembre)

Le Gouvernement français lance un dispositif de soutien supplémentaire, à destination des PME de la filière aéronautique les plus fragilisées. Ce dispositif sera financé par le plan France Relance et permettra d'accompagner environ 150 entreprises. Plusieurs modules leur seront proposés (diagnostic, diversification, préparation à la montée en cadences...). Ce nouveau dispositif sera opéré par le GIFAS, expérimenté d'ici la fin de l'année et déployé début 2022.

Textron Bell (16 novembre)

Bell has delivered its 400th Model 429 to the Canadian Coast Guard as part of its \$338 million fleet renewal program that began in 2014.

L3Harris WESCAM (16 novembre)

L3Harris Technologies has opened a new \$US110 million facility in Waterdown, Ontario, to meet growing demand for its WESCAM MX-Series electro-optical and infrared imaging technologies.

ATR (16 novembre)

ATR remotorise ses ATR 72 et 42 avec les Pratt & Whitney Canada PW127XT. Avec des émissions de CO2 diminuées de 40%, la technologie du PW127XT devrait permettre à ATR d'atteindre son ambition de 100% de compatibilité avec les carburants durable d'aviation (SAF), d'ici à 2025.

SpaceX-Starlink (16 novembre)

SpaceX s'attaque au marché de l'internet haut débit dans l'aéronautique commerciale avec Starlink, sa constellation géante, qui compte 1700 satellites, en orbite basse, sur un total de 12 000 à terme. La signature des premiers contrats avec des compagnies est espérée en 2022 et SpaceX cible les Boeing 737 MAX et Airbus A320neo (70% de la flotte mondiale).

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Collins Aerospace (16 novembre)

Collins Aerospace will upgrade the Emirates Airlines fleet of 101 B777 and 107 A380 aircraft with the GLU-2100 multi-mode receiver (MMR). It will also provide avionics and SATCOM capabilities for Emirates' 777X aircraft. Collins has also completed the acquisition of FlightAware.

GE (15 novembre)

GE Aviation has completed a series of dust-ingestion tests of the GE9X, which powers the Boeing 777X. Engineers injected a stream of dust debris into the engine to represent typical real-world conditions, including those in harsh dust and sand environments.

VR Technologies (15 novembre)

UAE investment firm Tawazun Economic Council has completed the acquisition of a 50% stake in VR Technologies, a subsidiary of Russian Helicopters and the developer of the VRT500 light-single helicopter and VRT300 unmanned helicopter. VR Technologies has also acquired Vertex Aero, an Italian company that holds EASA design organisation approval from Mecaer.

Aviation Commerciale

Lynx Air (18 novembre)

Calgary-based charter airline Enerjet is rebranding as Lynx Air and plans to begin scheduled "Ultra-Low Cost" (ULCC) operations in 2022. It will take delivery of three Boeing 737 MAX 8 aircraft and "hopes to grow to 46 jets in the next seven years".

Air France A220 (16 novembre)

Intelsat a été sélectionné par Air France pour installer son système d'internet à haut débit à bord de ses 60 Airbus A220.

Aviation d'affaires

NetJets (18 novembre)

NetJets is adding the Bombardier Challenger 650 to its European fleet beginning in 2022 as it continues to see "unprecedented demand, for which interest does not appear to be slowing,". NetJets expects to take delivery of more than 125 new aircraft by the end of 2022.

CAE (18 novembre)

CAE will deploy a new Bombardier Global 6500 full-flight simulator at the Emirates-CAE Flight Training Centre in Dubai. CAE's Global 6500 training is currently available only in Montreal.

Amber Aviation / NetJets (17 novembre)

China-based Amber Aviation has a partnership with NetJets that will include the transfer of up to 20 aircraft from NetJets to Amber over the next two years.

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Défense

Lockheed Martin F-35 production rates (18 novembre)

Lockheed Martin says that it is “on track” to meet its 2021 delivery goal of 132 to 139 F-35s. It plans to deliver 153 aircraft in 2022, then at a rate of 156 per year for the following years.

Embraer KC-390 (17 novembre)

The Brazilian air force will unilaterally reduce its order for the KC-390 from 28 to 15 aircraft. Embraer has said that upon formal notification, it will “seek legal measures relating to the economic and financial rebalancing of the contracts.”

US Air Force/GE Aviation (17 novembre)

The USAF and GE have entered Phase III of the metal additive manufacturing Pathfinder project that addresses “cold start” parts that take over 300 days to procure. It is estimated that the USAF has over 800 engine “cold starts” each year.

Textron Aviation Defense (15 novembre)

Textron Aviation Defense has won a \$143 million contract to provide eight Beechcraft AT-6 Wolverine light-attack aircraft, related equipment and training services to the Thai air force.

Calidus (14 novembre)

Abu Dhabi-based Calidus has displayed a mock-up of its two-seat B-350 attack aircraft, believed to be powered by a P&WC PW127C engine. The UAE air force is launch customer for the smaller Calidus B-250 armed turboprop, with 24 of the P&WC PT6A-powered type on order.

BAE Systems (12 novembre)

BAE Systems has agreed to acquire Bohemia Interactive Simulations to expand training products and services for the defense sector. Florida-headquartered BISim offers game-based software platforms built to support military readiness programs.

MRO

P&WC Designated Maintenance Facilities (17 novembre)

Pratt & Whitney Canada (P&WC) has named five Jet Aviation sites in Singapore, Australia, Hong Kong, the Philippines, and Switzerland as designated maintenance facilities (DMF) for line maintenance and mobile repair services. This raises the number of DMFs worldwide to 22.

Voyageur Aviation AeroVue cockpit upgrade (17 novembre)

Voyageur Aviation and Honeywell-BendixKing are developing a cockpit upgrade for Dash 8 100/200/300 aircraft named AeroVue, an aftermarket version of the Honeywell Primus Epic avionics system. Voyageur has installed the system in a Dash 8-100 and flight testing is due to begin in 2022. Voyageur will own the STC for the installation.

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KF Aerospace/Boeing (16 novembre)

Boeing has announced plans to add three conversion lines for its 737-800BCF. Two will be located at KF Aerospace in Canada and one in London Gatwick.

Boeing (15 novembre)

Saudia has joined Boeing's Optimized Maintenance Program, enabling advanced analytics of its B777 and B787 operations. The airline's B777s will also have their cabins modified.

Drones - Advanced Air Mobility

Joby Aviation (17 novembre)

Joby Aviation plans to certify the Joby eVTOL as an airplane, not as a new or special category of aircraft. It says it has reached agreement with the FAA on a certification path and is in discussions on actual testing with a planned entry into commercial operation in 2024.

Airbus CityAirbus NextGen (16 novembre)

Airbus expects to achieve type certification from EASA for its planned CityAirbus NextGen eVTOL aircraft within the next three years. Meanwhile, it continues to gauge public acceptance of the safety, viability, and convenience of urban air mobility (UAM).

D-Fend Solutions (12 novembre)

D-Fend Solutions has announced that its EnforceAir counter-UAS system detected, identified and accurately located multiple unmanned aerial systems (UASs), took control of an unmanned air vehicle and safely landed it. This was during an exercise led by INTERPOL, an international organization promoting global law enforcement cooperation, and by the Norwegian Police.

Volocopter (11 novembre)

Volocopter conducted a crewed demonstration flight of its electric vertical takeoff and landing aircraft at Gimpo International Airport in Seoul, South Korea, the first such test flight that has taken place in the country. South Korea aims to achieve air taxi service by 2025.

Spatial

Russian anti-satellite test (15 novembre)

The Russian satellite Cosmos-1408 broke up in low Earth orbit in a deliberate test of a Russian anti-satellite device that created thousands of pieces of debris that “threaten the interests of all nations” according to the US State Department.

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Initiative Net Zero Space (12 novembre)

À l'occasion du Forum de Paris sur la Paix, plusieurs opérateurs spatiaux dont le CNES, Arianespace, et Eutelsat ont signé l'initiative « Net Zero Space », demandant que soient établies d'urgence des règles afin de ne pas polluer l'orbite basse avec davantage de débris et de permettre son utilisation durable.

Small launch vehicle survey (17 novembre)

Table 1. Operational Small Launch Vehicles

Organization	Vehicle Name	Country	First Success	Success	Failures	Success Streak
Northrop Grumman	Pegasus XL	USA	5 Apr 1990	42	3	31
Northrop Grumman	Minotaur I	USA	27 Jan 2000	12	0	12
China Aerospace Science and Technology Corporation	Chang Zheng 11	China	25 Sep 2015	11	0	11
ExPace	Kuaizhou-1A	China	9 Jan 2017	12	1	1
China Aerospace Science and Technology Corporation	Kaituozhe-2	China	3 Mar 2017	1	0	1
Rocket Lab	Electron	USA/New Zealand	21 Jan 2018	18	3	1
iSpace	Hyperbola-1	China	25 Jul 2019	1	2	0
China Rocket Co, Ltd	Jielong 1	China	17 Aug 2019	1	0	1
Galactic Energy	Ceres-1	China	7 Nov 2020	1	0	1
Virgin Orbit	LauncherOne	USA	17 Jan 2021	2	1	2

Source: Carlos Niederstasser/Northrop Grumman via SpaceQ.

Innovation

Safran Helicopter Engines/ ÖAMTC Air Rescue (17 novembre)

Safran Helicopter Engines et l'opérateur autrichien ÖAMTC Air Rescue vont coopérer sur le déploiement de carburants « SAF » sur sa flotte d'Airbus H135 équipés de moteurs Arrius 2B2.

Pangea Aerospace (16 novembre)

Pangea Aerospace (Barcelone) a réussi le premier essai à feu d'un moteur-fusée aerospike à refroidissement régénératif. Ce démonstrateur permet à Pangea Aerospace de déverrouiller des verrous technologiques liés à l'histoire de ce type de moteur, très compliqué à refroidir. Une performance qui permettra à ce moteur de propulser des mini-lanceurs actuellement en développement.

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