

Dossier Air traffic in 2050

Letter from the former Director of Air France-KLM

At the forefront of more responsible European aviation, we bring people together to build the world of tomorrow.

(Raison d'être of the Air France-KLM group)

François Robardet

former representative of PS and PNC employee and former employee shareholders

N°930, September 18, 2023

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Editorial

Dear readers,

I would like to draw your attention to the article entitled Air traffic in 2050.

The traffic trends forecast between now and 2050 show that it will be more difficult to decarbonize aviation in Asia than in Europe.

Enjoy your reading François

Monday's Press Review

> AFI KLM E&M inaugurates its new Concorde engine workshop at Orly

(source Journal de l'Aviation) September 14 - **AFI KLM E&M is expanding and modernizing its engine maintenance capabilities**, and strengthening its roots in the Paris region. For this reason, the inauguration of the new engine shop (named Concorde) at Orly on September 13 was of particular importance, justifying the presence of a number of local elected officials, the President of the Valérie Pécresse region, as well as Air France CEO Anne Rigail, alongside Anne Brachet, CEO of AFI KLM E

&M.

The 4,200 m² building, whose construction was launched at the end of 2021, joins the historic Constellation (22) and Henri Farman (34) buildings. Bringing together under a single roof all the engine MRO activities carried out at Orly (previously scattered across six workshops on the platform), Concorde was designed taking into account feedback from Air France staff to improve processes and workspaces, which have been redesigned and optimized for greater business efficiency. With Concorde, the site's engine maintenance capacity has been increased by 20%, enabling us to carry out 240 workshop visits each year, instead of 200," explains Géry Mortreux, executive vice-president of Air France Industries. At the same time, processing times have been cut by 15%.

The business is also changing. Until now, it has focused mainly on GE90 (Boeing 777) and CFM56 (Airbus A320 and Boeing 737) maintenance, but it is now turning its attention to the new generations of engines that are joining the Air France fleet at the same time: GTF (PW1500G version of the A220) and LEAP (under an agreement with Safran - two LEAP-1A engines are currently being overhauled in the workshop).

The new workshop also provides AFI KLM E&M with state-of-the-art industrial resources. The building is also home to a robot from Dutch company Aiir Innovations, capable of visually inspecting an engine, uploading the data generated to a cloud so that it can be analyzed by an operator (who will take the necessary and appropriate maintenance measures if necessary), archived and used later as a reference. Aiir Innovations' solution is already in use in the Netherlands, but is the subject of a PoC (Proof of concept) at Orly, funded with support from the Île-de-France region.

Scheduled for launch in 2019, **the "Single Roof" project** was slightly delayed by the Covid crisis, but never abandoned: "It's **part of a long-standing industrial**

development strategy. We're always investing in the future", recalls Anne Brachet, who explained in 2021 (when the MRO engine business was at half-mast due to the crisis and the intensive use of green time management) that it would enable AFI KLM E&M to position itself for the upturn in the industry. Today's recovery is very real, and goes hand in hand with a particularly high demand for GTF maintenance. On this subject, Géry Mortreux points out that AFI's position has not changed: priority is given to the PW1500G - and the increase in capacity on this model at AFI will free up maintenance availabilities in other workshops for the needs of the PW1100G-JM (on the A320neo).

Last but not least, **Concorde also testifies to the local roots of Air France Industries, which points out that its recruitment needs are very high**. AFI needed to recruit 400 people this year, and as many in 2024, and the Orly site accounts for part of these needs.



My comment: Single roof is an ambitious project. It reflects the Air France-KLM group's determination to develop its engine maintenance business over the long term.

Grouping all engine maintenance operations under a single roof offers a number of advantages, detailed in the article.

I would add that the reduction in turnaround times will enable savings to be made on the rental costs of engines used to replace those immobilized during maintenance operations.

> Air France-KLM considering a new order for up to 50 wide-body aircraft

(source Air Journal) September 16 - The Air France-KLM group is considering a new order for long-haul aircraft, to replace part of its aging fleet.

According to The Air Current, the Air France-KLM group is finalizing an order for 50 long-haul aircraft from Airbus and/or Boeing, to replace its aging fleet of Airbus A330s and Boeing 777-200ERs. Citing two people close to the matter, the publication adds that the decision could come as early as the end of September 2023.

Air France-KLM's S1 2023 report, published in July 2023, notes that the group has 540 aircraft, of which 521 were in active service at June 30, 2023. "The average age of aircraft in the operational fleet was 12.2 years, including 12.5 years for the long-haul fleet, 12.9 years for the medium-haul fleet, 20.3 years for the cargo fleet and 9.2 years for the regional fleet," the report continues.

To date, Air France-KLM has a total of 59 Boeing 777-300s (43 at Air France, 16 at KLM), 33 777-200s (18 at AF, 15 at KLM) and 26 Airbus A330-200s and A330-300s, divided respectively between five A330-300s at KLM and 15 and six A330-200s at Air France and KLM. **"Fleet modernization will be reflected in the continued growth**

of the A350-900 fleet at Air France and the B787-10 fleet at KLM," notes the first-half 2023 report.

Currently, Air France has 21 Airbus A350-900s, the last of which was delivered on July 12, 2023. Meanwhile, KLM has 23 Boeing 787-9s and 787-10s, according to data from ch-aviation.com.

Earlier this month, the airline and Airbus announced their intention to create a maintenance joint venture for the Airbus A350, which could give the European giant some leverage in its negotiations with the Franco-Dutch airline.

My comment: When ordering new aircraft, the choice of engines is of strategic importance. Their efficiency, low fuel consumption and price are all carefully examined.

But for the Air France-KLM group, it is virtually imperative that AFI KLM E&M be able to maintain these engines. This will enable the company to consolidate its position as a major player in aircraft maintenance.

However, engine manufacturers, and Rolls-Royce in particular, are willing to lower the selling price of their engines on condition that they maintain them themselves.

Studies show that

. aerostructure (fuselage, wings, empennage and engine nacelles) accounts for around 35% of the cost of an aircraft,

. engines for around 25%.

The remaining 40% is divided between

- . wiring (15%),
- . avionics equipment (15%),

. landing gear (5%),

. cabin equipment, which ultimately accounts for only 5% of costs.

This scale varies from one model to another, but the main proportions are maintained for twin-engine aircraft.

> KLM has presented a final proposal to ground staff unions for a new collective bargaining agreement (CCT).

(source ANP, translated with Deepl) September 15 - **The FNV and CNV unions** have reached a collective agreement with KLM for the airline's ground staff. It is now up to union members to accept it. If they do, the threat of strike action is definitely over, said Souleiman Amallah, CNV negotiator. FNV director David van de Geer called it a "wonderful proposal".

KLM employs around 15,000 ground staff (...) According to the agreements

reached, their salaries will increase by 135 euros from September, in proportion to their employment. From October 1, salaries will rise by 6%, then by 3% from July 1 next year. Staff will also receive a one-off payment of 500 euros gross in January 2024.

One of the burning issues in the CAO negotiations was compensation for the rapid rise in inflation. This aspect has also been taken into account in the agreement. If inflation exceeds 3% over the full year 2024, employee salaries will be increased by a further 2% on January 1, 2025.

Earlier, the FNV and CNV had threatened action among ground staff, as negotiations on the collective agreement had reached an impasse. The unions gave KLM an ultimatum, but just before the deadline expired, the two unions decided to resume negotiations.

(...)

In a press release, KLM described the result as "substantial progress for all colleagues on the ground". According to the airline, the other unions involved, De Unie, NVLT and VKP, will let it know later if the agreement can be presented to members. **KLM hopes that "this will soon lead to an agreement with the five ground staff unions".**

My comment: The draft wage agreement has yet to be ratified by the members of the unions representing ground staff.

> United States: airlines reduce forecasts due to high fuel prices

(source Air Journal) September 14 - American Airlines, Southwest Airlines, United Airlines, Spirit Airlines, Frontier, Alaska Air... all reported declines in bookings alongside increases in operating costs linked to higher fuel prices in the current quarter, as oil prices rose due to extended production cuts by Saudi Arabia and Russia.

Low-cost carrier Frontier reported "a recent and unexpected change in the trajectory of bookings": "In recent weeks, sales have tended to be below historical seasonal trends", it acknowledged.

Low-cost carrier Spirit Airlines has lowered its third-quarter revenue forecast to reflect higher fuel prices, with third-quarter revenues now between \$1.24 and \$1.25 billion, compared with a previous estimate of \$1.3 to \$1.32 billion. To sell more tickets, it is announcing significant discounts for travel booked for the second half of the third quarter through to the pre-Thanksgiving travel period in November.

American Airlines said it expects earnings of 20 to 30 cents per share for the current quarter, compared with a previous forecast of 85 to 95 cents per share, sending its shares down 4%. The airline also lowered its forecast for total revenue per available seat mile, an indicator of pricing power.

These lower forecasts come against the backdrop of early signs of weakening

demand for domestic travel, inflationary pressures on consumers, and costly contracts that airlines are signing to retain staff.

My comment: The steady rise in jet fuel prices (since June 2023, they have risen from \$92 to \$133 a barrel) is weighing on airline costs worldwide.

Read more about the impact on airline share prices, in the section on Air France-KLM share price trends.

> Flying cabs: Everything is being done to get them ready for the Olympic Games

(source La Tribune) September 14 - **Will we be able to travel in flying cabs during the Paris 2024 Olympic Games?** One thing's for sure, "everything's being done to make sure they're ready for the Olympics", assured Edward Arkwright, executive managing director of the ADP Group (Aéroports de Paris), at the Greater Paris Summit organized by La Tribune on Thursday, September 14. Called VTOL for "vertical take-off and landing vehicles", "these are new air travel vehicles that are therefore decarbonized and nuisance-free", he describes, claiming

that, at 60 decibels, they are four times quieter than a helicopter.

For the time being, three routes are planned. The first runs between Roissy-CDG and Le Bourget airports, the second between the Valéry-André heliport (Issy-Les-Moulineaux) and the Saint-Cyr-l'École airfield, and the third between the heliport and the Austerlitz barge. In addition to transporting passengers, notably for the Olympic Games, flying cabs could de facto have other uses.

"The idea would be to have a barge in front of the Gare d'Austerlitz to bring flying cabs close to the Pitié Salpêtrière hospital to test medical and emergency routes," explains ADP's CEO. He adds: "It would be a world first, not to fly these vehicles, but to insert them into air traffic".

However, a number of points still need to be clarified to achieve such a goal, explains the executive: "As regards the environmental procedure, there will be a public inquiry in November-December. Aircraft certification is underway. We still have to finalize the business model and pricing, so that it will eventually be accessible to everyone".

(...)



My comment: The idea is appealing, but there are still so many stages to go through that the goal of commissioning for the 2024 Olympics seems unattainable.

> MEPs agree on sustainable fuel quota

(source Air Journal) September 16 - As part of the Refuel EU plan, European lawmakers on Wednesday approved binding green fuel targets for airlines. The aim: to increase their use of sustainable aviation fuels.

In particular, the directive calls for a ramp-up in fuels derived from biomass or based on hydrogen and CO . It aims to increase both demand for and supply of sustainable aviation fuels (SAF), which have zero net CO2 emissions or lower CO2 emissions than fossil kerosene. **Fuel suppliers must ensure that 2% of the fuel made available at EU airports is SAF by 2025, rising to 6% by 2030, 20% by 2035 and gradually to 70% by 2050**.

From 2030, 1.2% of fuels will also have to be synthetic fuels, rising to 35% by 2050. Synthetic fuels, also known as "e-kerosenes" (made from CO2 and hydrogen produced by renewable energies), are manufactured from captured CO2 emissions, which, according to their proponents, balance the CO2 released when the fuel is burned in an engine.

For the time being, these fuels are produced in tiny quantities and are much more expensive than conventional aviation fuels. Sustainable fuel is seen as a way to start gradually reducing the carbon footprint of airlines in the short term.

With this vote, Europe will be leading the way in decarbonizing air transport. "This is SAF's biggest incorporation mandate in the world," explains Matteo Mirolo, sustainable aviation specialist at Transport & Environment (T&E).

Air France "welcomes the vote on the Refuel EU plan", even though the airline has already set itself more ambitious targets. It has already incorporated 1% SAF since 2022, and plans to "incorporate at least 10% sustainable aviation fuel on all its flights by 2030". Measures that will cost the company dearly. To incorporate 1% SAF in its aircraft fuel tanks by 2022, Air France has already spent an additional 100 million euros. To reach 10% by 2030, the company expects to incur an additional bill

of 1 billion euros.

Finally, the European Parliament is planning "anti-tankering" measures to prevent aircraft from refueling outside the European Union with conventional kerosene, which is up to five times cheaper. The aim is to "avoid the risks of traffic transfers to non-European hubs not subject to these regulations, and of carbon leakage", as Air France fears.

My comment: I note one important aspect of this decision: fuel suppliers will have to provide sustainable aviation fuels in sufficient quantities to enable airlines to meet the targets set for them.

Note the reaction of Matteo Mirolo, from the NGO Transport & Environment: "It's a technology that has proved its worth in climate terms. But given the industry's growth forecasts, it's unrealistic to imagine producing enough green fuels for all these flights".

To date, the growth forecasts for air transport focus mainly on Asia and Africa. Not Europe (see Air traffic in 2050).

So it's safe to assume that European airlines will have sufficient supplies of sustainable aviation fuels.

> Ethiopian Airlines aims to tap the growing Chinese market

(source Xinhua, Chinese equivalent of AFP) September 14 - **Ethiopian Airlines plans to tap the growing Chinese market by opening new routes, making the Ethiopian capital Addis Ababa a gateway to Africa**, said Ethiopian Airlines Managing Director Mesfin Tasew.

"China is a very important market for Ethiopian Airlines. We have been connecting China and Africa for 50 years, and we want to expand our cooperation with China by increasing flight frequency and destinations," Mr. Tasew recently told Xinhua in an interview.

Ethiopia's national airline began freight service to the Chinese city of Chengdu almost two weeks ago.

According to Mr. Tasew, **Ethiopian Airlines sees China as an engine for future growth**. In particular, he pointed to the growing number of investors and businessmen flying between China and Africa.

"Our cargo flights to China connect not only Africa and China, but also Europe and China. So we have big cargo operations with China. We work with Chinese businessmen to export their manufactured products to Africa, Europe and other parts of the world," he explained.

(...)

My comment: Last week, I reported on Ethiopian Airlines' significant growth in Africa (<u>letter n°929</u>), and mentioned the indirect support of China and India.

Air transport in 2050

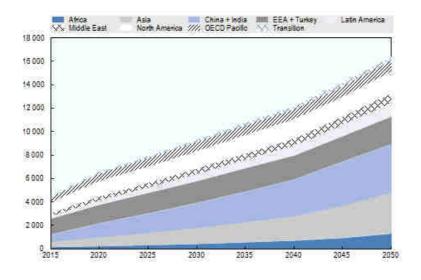
> Towards a 4-fold increase in intra-African air traffic

(source CercleFinance) September 13 - **Boeing reports that, according to its forecasts, intra-African air passenger traffic is set to more than quadruple over the next twenty years**. The aircraft manufacturer estimates that 1,025 new aircraft will be needed to support this growth over the next two decades.

Also according to Boeing, overall growth in African air traffic is expected to reach 7.4%, the third highest among the world's regions and surpassing the global average of 6.1%. African carriers are well positioned to support growth in intraregional traffic and capture market share, developing both passenger services and trade within the continent," said Randy Heisey, Boeing's General Manager of Commercial Marketing for the Middle East and Africa. (...)

My comment: The development of air traffic in Africa seems impressive, but it should be put into perspective, as current traffic is relatively low.

Here is a table entitled "Projected international air transport demand by world region, 2015-50" taken from a report published in 2019 by the OECD.



Over the period 2015-2050, the OECD forecasts a fourfold increase in air traffic, with major disparities between geographical areas.

Here are the details: . Africa: traffic multiplied by 9.5 . **Asia: traffic multiplied by 8**

China+India: traffic multiplied by 6.8

Europe+Turkey: traffic multiplied by 1.7

Latin America: traffic multiplied by 4.4

Middle East: traffic multiplied by 3.2

North America: traffic multiplied by 2 . *Pacific: traffic multiplied by 2.3*

Traffic shares will be fundamentally altered: . Africa: from 3% in 2015 to 8% in 2050

- . Asia: from 10% in 2015 to 21% in 2050
- . China+India: from 14% in 2015 to 25% in 2050
- . Europe+Turkey: from 30% in 2015 to 14% in 2050
- . Latin America: from 6% in 2015 to 7% in 2050
- . Middle East: from 6% in 2015 to 5% in 2050
- . North America: from 21% in 2015 to 11% in 2050
- . Pacific: from 9% in 2015 to 6% in 2050

These forecasts, if confirmed, support the view that Asia will be the hardest place to meet aviation decarbonization targets.

End of press review

> Air France-KLM share price and oil price trends over the last six months



My comment: The table above (source: Boursorama) compares Air France-KLM's share price (the red line) and Brent crude oil (the blue zone) over six months. It is clear that, over this period, when oil rises, Air France-KLM's share price falls (and vice versa).

As a reminder, the airlines suffered similar falls in August: . IAG: -5.84%,

. EasyJet: -10.20%, . Lufthansa: -7.40%, . Delta : -9,38%, . Air France-KLM: -8.80%.

> Air France-KLM share price trend

Air France-KLM shares closed at 12.17 euros on Monday September 18. It is down this week by -8.08%. Pressure on oil prices is behind this decline.

In two months, the Air France-KLM share price has lost over 20%. Other airlines fared little better.

Lufthansa lost 12%, Delta 15%, easyJet 11%.

On January 2, 2023, the share price was 12.53 euros.

The analysts' 12-month average (consensus) for AF-KLM shares is 19.70 euros (it was 15.0 euros at the beginning of January). The highest price target is 24.50 euros, the lowest 11.0 euros. I only take into account analysts' opinions subsequent to the May 2022 capital increase.

You can find details of the analyst consensus on my blog.

My comment: Pressure on oil prices is behind this drop.

Note: Air France-KLM share prices prior to August 31 have been multiplied by ten to account for the reverse stock split.

> Fuel price trends this week

The price of a barrel of Jet Fuel in Europe is up +\$4 to \$135. It was \$94 at the end of June, and \$79 before the outbreak of war in Ukraine.

Brent crude oil (North Sea) is up +\$5 to \$95 per barrel.

From mid-February 2022 to the end of July 2022, it was yo-yoing between \$100 and \$120. Since then, it has oscillated between \$75 and \$99.

The spread between Jet Fuel in Europe and Brent crude oil is still abnormally high. It now stands at \$40, whereas it was around \$15 before the conflict in Ukraine. In 2022, at the start of the Ukrainian conflict, the spread was close to \$50.

My comment: The spread between Jet Fuel in Europe and Brent crude oil is still

abnormally high.

It is now \$40, whereas it was around \$15 before the conflict in Ukraine. In 2022, at the start of the Ukrainian conflict, the differential was close to \$50.

This decorrelation between the price of Brent crude and the price of jet fuel has led airlines to review their fuel hedging strategies. Before the Ukrainian crisis, most fuel hedging was based on the price of Brent crude oil.

== quote: Air France-KLM Group UNIVERSAL RECORDING DOCUMENT 2022, page 173:

(Thus) the Air France-KLM Group had put in place a policy of systematically hedging fuel price risk essentially based on the price of oil (Brent).

At the start of the Ukrainian crisis, against a backdrop of high volatility and tension on the commodities market, the Air France-KLM Group integrated new hedging instruments on cracking margins to better cover the risk linked to the decoupling between indices reflecting the price of crude oil (Brent ICE) and indices reflecting the price of refined products (Gasoil ICE and Jet CIF NWE). == end of quote

In short, part of the Air France-KLM Group's fuel hedging is now based on the price of Jet Fuel.)

Good to know

> Advice for current and former employee shareholders

You'll find details of how to access the managers' websites on my navigaction site.

To avoid forgetting to change your contact details each time you change your postal address, **I advise you to enter a personal e-mail address**. This will be used for all correspondence with management bodies.

Keep all the documents relating to your Air France-KLM shares in one place: all the letters you receive from the various managers, Natixis Interépargne, Société Générale, and your personal financial institution if you bought your shares through it.

My comment: If you have shares in one of the funds managed by Natixis Interépargne, remember to log in to your account manager once a year, to avoid it being considered inactive. PEE inactivity is governed by the Eckert law.

After 5 years of inactivity, Natixis Interépargne sends a letter/email to those concerned asking them to log in to their account or to call Natixis Interépargne to reactivate their account.

Natixis Interépargne sends this information every year after 5 years of inactivity and up to the 10th year. After 10 years of inactivity, the assets are transferred to CDC, which holds them for 20 years.

This is the old 30-year prescription period, which breaks down into 2 stages: 10 years with the account keeper and 20 years with CDC.

Inactivity means not carrying out any transactions and/or not logging on to your account and/or not calling and/or not writing to Natixis Interépargne.

This system also applies to PERCO/PER since the PACTE law.

> FCPE management

When you invest in one of Air France's FCPE funds, you obtain shares in these funds. You do not hold shares directly.

It is the supervisory boards, which you elected in July 2021 for a five-year term, that manage the funds and make the decisions.

The Aeroactions, Majoractions and Concorde funds only hold Air France shares.

The Horizon Épargne Actions (HEA), Horizon Épargne Mixte (HEM) and Horizon Épargne Taux (HET) funds manage portfolios of various equities.

My comment: If you'd like to find out more about the management of the various Air France employee shareholding funds, please visit the <u>Air France-KLM employee</u> <u>shareholding section of my website</u>.

Details

This information does not constitute a solicitation to buy or sell Air France-KLM shares.

Please feel free to react to this press review, or to send me any information or

thoughts that will help me better carry out my role as a director of the Air France-KLM Group.

By return, you can ask me any questions you may have about the Air France-KLM group or employee share ownership...

See you soon.

For the latest Monday press reviews, click here.

If you like this press review, please pass it on.

New readers can receive it by sending me an email address of their choice.

François Robardet

former Director of Air France-KLM. You can find me on my twitter account @FrRobardet

Nicolas Foretz, PNC, Director of Air France-KLM representing employee and former employee shareholders, PNC and PS



To write to Nicolas: message for Nicolas Foretz.

During our election, we received the support of the CFDT and the UNPNC.

This press review covers topics related to Air France-KLM shareholding.

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