

The aeronautics industry at a crossroads: supporting and diversifying

List of signatories to be found at the end of the contribution

The health crisis at the beginning of 2020, which has continued in interminable upheavals, and to a lesser extent the ensuing economic crisis, have drastically reduced air traffic worldwide. If in September 2020, airplanes are again flying in China at a level close to that of last year, this is not the case in the rest of the world, and even less so for international flights.

Airlines are heavily impacted, as well as the aviation industry, one of the jewels of our national economy. The air traffic was distributed these last years in $\frac{1}{4}$ of business flights for $\frac{3}{4}$ of flights for family and tourist reasons. The crisis has led to an explosion in the use of teleworking and videoconferencing meetings. Improved health conditions should lead to a resumption of travel - today's forecasts estimate a return to traffic equivalent to that of 2019 by 2023. But will we return to business as usual? Business travel is likely to be less developed, as new ways of working at a distance have proven to be so efficient, not to mention the gains they bring in terms of time, money and fatigue.

Concerning tourist trips: this time, the limit could be that of our planet. To meet the commitments to reduce greenhouse gas emissions made in the 2015 Paris Climate Accord, the annual decrease in greenhouse gas emissions must be equivalent to that caused by the health crisis in 2020, i.e. -4%. Reformulated differently, this means that each year we must emit 4% less than the previous year. The figures for the carbon footprint of air traffic in France, including "carbon imports" - i.e. international flights - are estimated at 3.2%. To this must be added the contribution of linear trails and cirrus clouds (white clouds created by the passage of airplanes through the sky) to the greenhouse effect phenomenon itself (by preventing heat from escaping from the earth, a bit like a lid), applying a factor of 2 in the long term (this is the value retained by ADEME, the French Environment and Energy Management Agency). As a result, the contribution of current French air traffic to global warming is of the order of 6.4%. By comparison, maritime transport, although polluting, has a contribution of about 2%. Above all, this contribution will be all the more significant if air traffic continues to grow as predicted, while reduction efforts are being made on all other emission sources (including maritime transport, where a regulatory reduction in the speed of cargo traffic is being negotiated).

Would the "green plane" make it possible to reduce these emissions? Paths for technological improvement can be explored, but it would be misleading to see it as a solution exempting any further effort. Indeed, the technological leap towards a hydrogen-powered plane, if all technological obstacles are removed by then (storage tanks for liquid hydrogen at -253°C), will not be operational before 2035, and will be limited to medium-haul flights. This means that deployment will begin on that date, whereas the reduction in greenhouse gas emissions must begin today, to be at -40% by 2030. Moreover, huge hydrogen production units would have to be built, taking up too much of the renewable electricity available to extract this gas by hydrolysis

of water. As for the biofuels that could be used in existing airplanes, their massive production would be at the expense of food agriculture, or at the price of continued deforestation that would endanger biodiversity and make carbon sinks disappear.

It should be noted that, under pressure from the airlines, aircraft manufacturers have constantly worked to reduce fuel consumption for successive generations of aircraft - the economic dimension being joined here - as often - by the ecological dimension. The excellence of our engineers must therefore be mobilized to develop a "greener" aircraft, but - without going as far as banning the aircraft as some people are calling for - it seems essential to reconsider the role of air transport in our travel. This observation is shared by the Citizen Convention for the Climate, which has unveiled 7 proposals to "limit the adverse effects of air transport" during its session of June 18, 2020. It is also shared by citizens who are not environmental extremists, but passionate about aeronautics: students and alumni of the prestigious aeronautical engineering school "Sup'aéro" in Toulouse (united in the association "Sup'aéro Décarbo"), employees. The target they propose is to achieve a 4% reduction in worldwide traffic per year, which could be reduced to 3% per year by rapidly renewing the fleet of aircraft in circulation with the most economical recent models (an average 20% reduction in consumption between two generations of aircraft).

As we can see, the solution would not be to abandon the aeronautical excellence sector, but rather to adapt it to this new context: supporting research and development activities for a "greener" aircraft, which will be needed in any case, and adapting production capacity to a demand that is expected to decline.

The aeronautics industry is well structured, through GIFAS (Groupement des Industries Françaises de l'Aéronautique et de l'Espace), and CORAC (Conseil pour la Recherche Aéronautique Civile) dedicated to research. The government has announced substantial funding to support this research; the skills are there, so the path seems clear on this dimension. It has also released small envelopes to help support and restructure the sector. The main effect of this second lever will be to avoid loss of skills in the sector and gain in competitiveness, but should not have a positive impact on employment in the short term. The difficulty we face today therefore lies mainly in dealing with the decline in the sector's workforce. Estimates of job losses vary between 30,000 and 50,000, for around 300,000 direct jobs in the aerospace industry in France. Sharp decline, cushioned for the moment by long-term short-time working.

To absorb this drop in workload, a first solution, which nobody talks about but which, in fact, is implemented without naming it, is the sharing of working time: indeed, what does partial compensation of employees represent in compensation for a drop in workload of up to 40%, but more usually mobilized today in the aeronautics sector up to 20%, if not a mechanism of RTT (Reduction of Working Time)? In a period of questioning on the sustainability of economic growth and the sharing of wealth, this idea deserves to be brought back into the debate.

In any case, given the volume of employment involved, it is imperative to take proactive measures - which could benefit all job seekers, not just aerospace employees - in two areas: company diversification and support for employees. Diversification must be studied within the aeronautical companies themselves, or in support of the development or creation of other companies. We are fortunate to have in our employment catchment areas a pool of companies,

skills and research structures. The financing is available, it must be mobilized. There are many opportunities for diversification, compatible with or contributing to the fight against global warming: energy (photovoltaic, wind power, methanisation), health, agriculture (50% of farmers are over 55 years old, demand for local and organic products, etc.), construction (massive thermal insulation plan), other means of transport such as railways or electrically powered mobility, water management, training, etc.

The second component is the support of employees. Advice in professional orientation, training, support: the tools exist, but the structures that carry them today are overwhelmed (Pôle Emploi, Regional Council, training organizations...), they must be given the means. This additional expenditure is not lost money, because it is better to help a person find a new job than to pay him unemployment benefits or social minima.

Above all, this approach will only be effective if it is well piloted. Relying solely on "market" forces to aim for the best allocation of resources according to needs is of course a delusion, particularly in the context of today's economic and industrial reorientation. On the contrary, it is necessary to mobilize all the players in a territorial social dialogue: local authorities, first and foremost the Regional Councils, employees and employers represented by their professional unions, consular bodies such as chambers of commerce and agriculture, research and training organizations, State representatives, etc.

Everyone has a piece of the solution, and we must work together to build the territorial economic and social dynamics that will make it possible to overcome the health, ecological and economic crises that are hitting certain parts of our industry. It is by supporting and accompanying them in these transitions, in our territories rich in resources and skills, that we will succeed in maintaining and developing the industry and employment.

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