industriAll
EUROPEAN TRADE UNION

FLY SUS

Strengthening Cooperation through the Supply Chain for a Sustainable Transformation of the Aeronautics Sector

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Introduction

The European aviation and aerospace sector is at a decisive crossroads. As air traffic returns to pre-COVID-19 levels, the industry faces increasing pressure to deliver the twin green and digital transitions while remaining competitive, resilient, and socially sustainable amid global competition, supply chain disruptions, high energy prices, and geopolitical uncertainty. The industriAll Europe FLY-SUS project, "Strengthening Cooperation through the Supply Chain for a Sustainable Transformation of the Aviation Sector", responds directly to these challenges.

The project addresses sustainability across the European aerospace value chain by promoting cooperation, shared responsibility, and strong social dialogue among all stakeholders. Particular attention is given to medium-sized enterprises, which employ a large share of the workforce and play a critical role in the sector, yet often face structural disadvantages that risk undermining the sector's transformation. By examining sustainability from an economic, environmental, and social perspective, the project identifies key challenges and outlines pathways towards a fair and balanced transition.

For the first time, industriAll Europe explores the sustainability of an industrial sector through the lens of value chain cooperation, with workers' involvement at its core. This approach reflects concerns raised by workers and trade unions across the aerospace supply chain, including fragmented social dialogue—particularly in SMEs—skills shortages, an ageing workforce, and increasing cost and performance pressures.

The FLY-SUS project combines research, surveys, interviews and workshops across Europe's main aerospace regions to identify good and bad practices within and beyond industriAll Europe's membership. It aims to strengthen social dialogue at all levels and to develop joint recommendations that empower workers' representatives and trade unions throughout the value chain.

Employing around 400,000 workers in the EU, the aerospace sector is a strategic industrial asset built on high-quality jobs and specialised skills. Preserving this industrial base—particularly within SMEs—is essential as the sector undergoes profound transformation. This report underlines that sustainability cannot be achieved without addressing imbalances along the value chain and ensuring that climate ambition, industrial resilience, and social progress advance together through strong social dialogue and cooperation.

EU+UK

The scope of the study includes the United Kingdom. In fact, in aeronautics, Europe's industry cannot be considered separately from that of the United Kingdom. The two are highly interdependent and closely interconnected, making it essential to address them together.

Summary

FINDINGS ABOUT THE SITUATION OF THE EUROPEAN CIVIL AERONAUTICS SUPPLY CHAIN

The aeronautical value chain organised around clusters

THE IMPORTANCE OF THE AERONAUTICS INDUSTRY

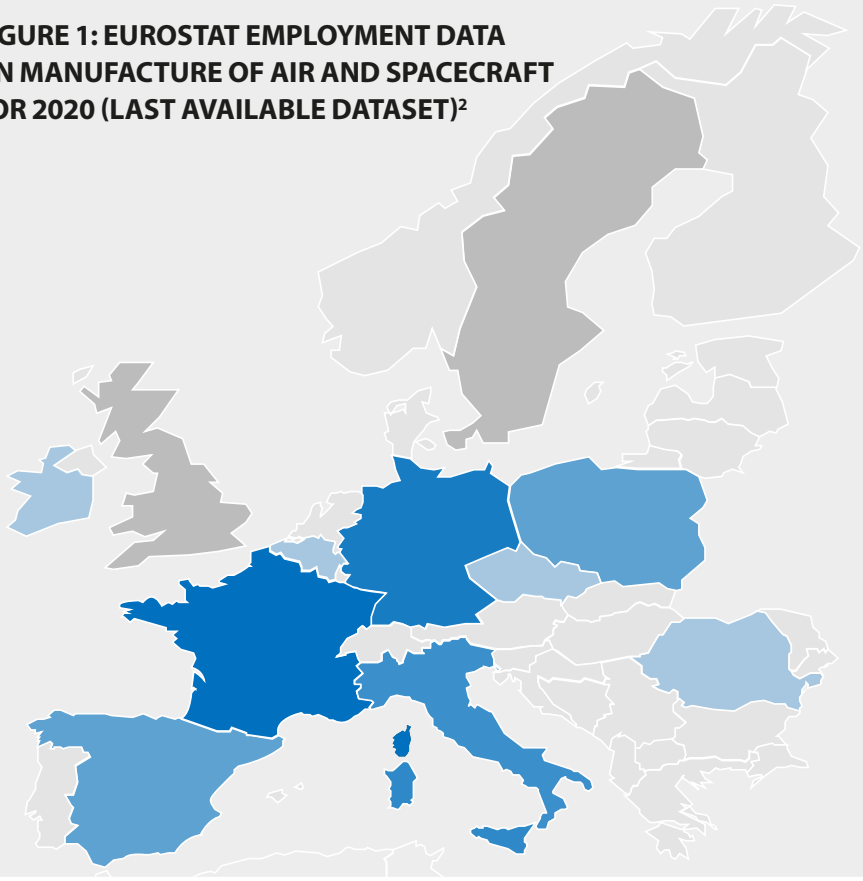
Europe has a long history in aeronautics. The European aeronautics industry was originally organised along national lines around key national companies. In terms of direct employment, the European aeronautics industry is mainly present in France, followed by Germany, Italy and the United Kingdom. There is also significant aeronautics activity in Spain, Sweden, Poland and Belgium.

While a national aeronautics industry was once strongly represented in many Eastern European countries, with European integration, the civil aeronautics industry in these countries has been marked by the presence of multinationals from Western Europe and North America that have opened sites there. As part of this study, an in-depth mapping of the main aeronautics companies by country was carried out.

ASD estimates that the civil aeronautics industry directly employs more than 400,000 workers in Europe and supports nearly four million across the continent[1].

To date, the aerospace industry remains predominantly a Western European industry. According to Eurostat data, most direct workers of the aeronautics industry are based in France and Germany (**FIGURE 1**). The predominance of western Europe may also be shown by analysing Airbus's direct subcontractors, 50% of them in number of subcontractors are based in France, Germany and the United Kingdom (**FIGURE 2**).

FIGURE 1: EUROSTAT EMPLOYMENT DATA ON MANUFACTURE OF AIR AND SPACECRAFT FOR 2020 (LAST AVAILABLE DATASET)[2]



NUMBER OF EMPLOYEES IN THE AERONAUTICAL INDUSTRY ACCORDING TO THE LATEST AVAILABLE EUROSTAT DATA

- More than 100,000 employees
- Between 51,000 and 99,999 employees
- Between 30,000 and 50,999 employees
- Between 10,000 and 29,999 employees
- Between 2,000 and 9,999 employees
- Less than 2,000 employees
- Data not available

(Source: Eurostat; year under review 2020; NACE code C303 - Manufacture of air and spacecraft and related machinery)

1. ASD, A European industrial strategy for civil aeronautics, 2/12/2025
https://umbraco.asd-europe.org/media/lsror1av/industrial-strategy-for-ca_web_singlepages.pdf?rmode=pad&v=1dc62fdf1b59750
2. Eurostat, Statistiques annuelles détaillées sur l'industrie (NACE Rév. 2, B-E 2005-2020), Code NACE C3030
https://ec.europa.eu/eurostat/databrowser/view/sbs_na_ind_r2__custom_1245276/default/table

FIGURE 2: AIRBUS SUPPLIERS BY LOCATION[3]

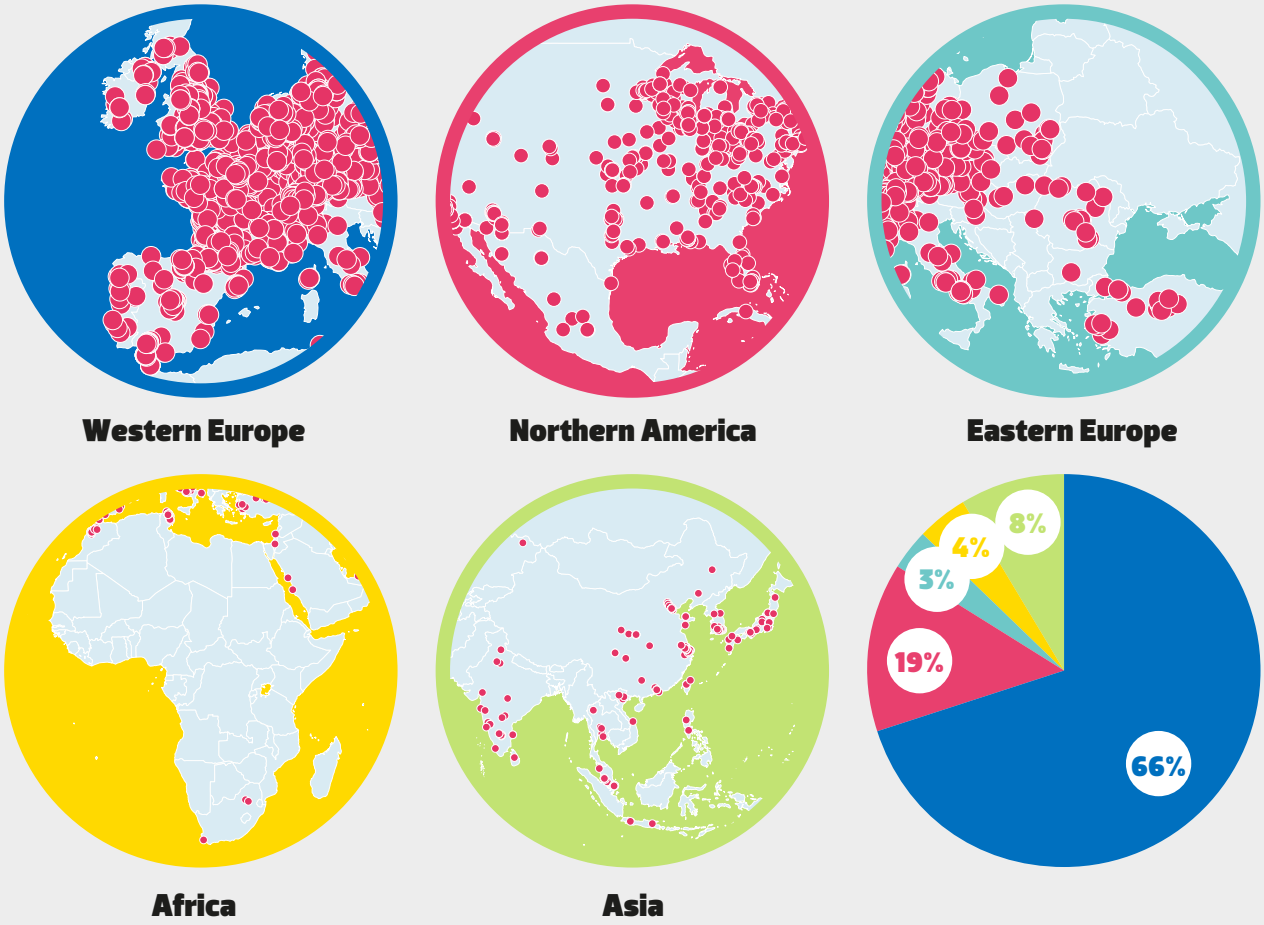
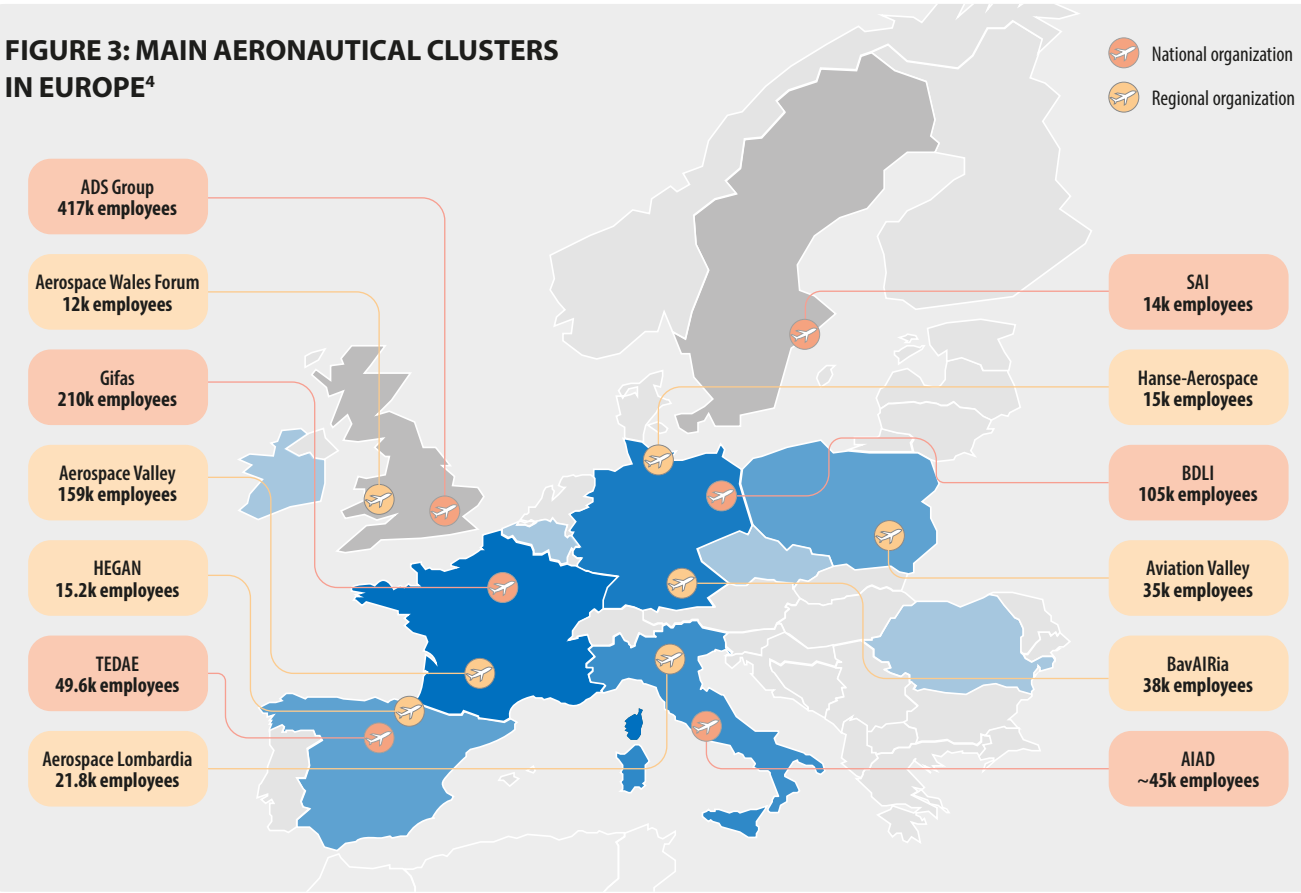


FIGURE 3: MAIN AERONAUTICAL CLUSTERS IN EUROPE[4]



Aeronautical clusters have emerged in most European countries. Aeronautical companies have clustered around specific cities or regions to facilitate cooperation, and this legacy is still visible today. **FIGURE 3** portrays the main regional aeronautical clusters in Europe.

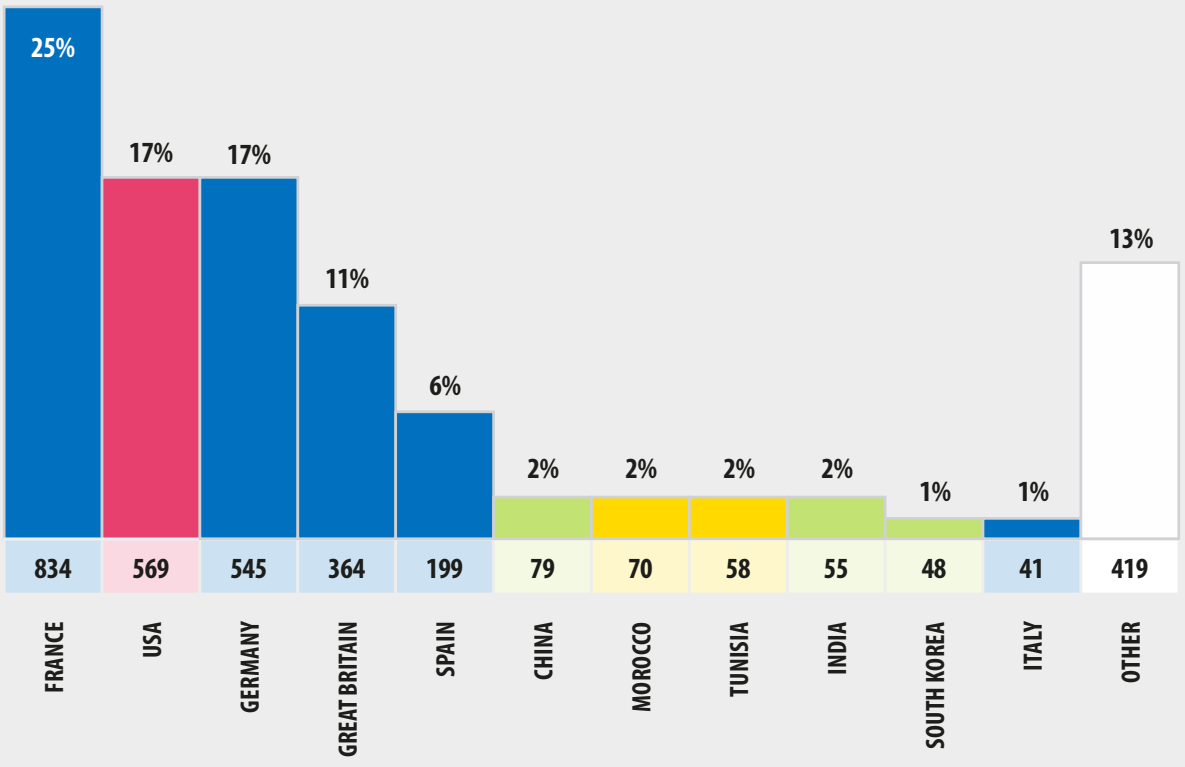
The existence of aeronautics clusters enables the industry to organise itself and better defend its interests. This includes increasing the visibility of local companies, creating dedicated training programmes, defending common interests and increasing cooperation between companies on cross-cutting issues, ranging from training to R&D and cybersecurity.

EUROPEAN AND GLOBAL INTEGRATION OF THE EUROPEAN CIVIL AERONAUTICS INDUSTRY

The advent of Airbus at the end of the 20th century helped to strengthen the European civil aviation industry, and to increase cooperation between countries. Today, the integration of the civil aviation industry is particularly important and includes the United Kingdom. Brexit has not fundamentally changed the United Kingdom's significant position within the European aerospace industry. To illustrate this, we note that 11% of Airbus's direct suppliers are based in the United Kingdom in 2024. According to this metric, the United Kingdom's weight is greater than that of Spain or Italy (**FIGURE 4**).

3. Airbus, Airbus approved list of suppliers from December 2024 https://www.airbus.com/sites/g/files/jlcbta136/files/2024-12/Airbus-Approved-suppliers-list.pdf (consulted in June 2025)
4. For additional information and precise references, please look at the 2025-intermediate report
5. Airbus, Airbus approved list of suppliers from December 2024 https://www.airbus.com/sites/g/files/jlcbta136/files/2024-12/Airbus-Approved-suppliers-list.pdf (consulted in June 2025)

FIGURE 4: NUMBER OF APPROVED AIRBUS SUPPLIERS BY COUNTRY[5]



The European integration of the civil aeronautics industry is evident not only in large companies such as Airbus, Safran and Rolls-Royce, but also in the subcontracting chain that spans the whole of Europe.

Thanks to its vast experience in the aeronautics industry, Europe has been able to establish itself as the world leader in aeronautics, ahead of other regions of the world. The technical and industrial complexity of the aeronautics industry makes it a source of high-quality jobs, which are generally better paid than in other sectors. Furthermore, the technical demands of the aeronautics industry drive up the standards of all industries in a region.

Today, civil aeronautics employs more than 406,300 people in Europe[6] . However, this figure appears to be significantly underestimated, as it does not include, or includes only to a limited extent, subcontractors. Two characteristics stand out regarding subcontractors: they are mainly medium-sized or small companies, and many are multi-sectoral. ASD estimates that in addition to direct employment, nearly 4 million are working in the aeronautics industry, including direct, indirect and induced employment[7].

The work carried out as part of the FLY-SUS study highlighted that part of the aeronautical subcontracting value chain is invisible in public discourse, particularly because, beyond tier 1 and tier 2 subcontractors, the value chain is fragmented and composed of a myriad of different players.

The fact that Airbus alone had more than 4000 direct suppliers in 2024 and hundreds of direct Airbus suppliers are based in France, Germany or the United Kingdom, gives an indication how fragmented the supply chain remains. If consolidation of the supply chain is happening to some extent in a number of countries, like France or Italy, the aeronautical supply chain remains overall very fragmented in Europe.

FIGURE 5 illustrates this, based on Eurostat data, considering only companies that meet the NACE C303 code.

FIGURE 5: NUMBER OF EMPLOYEES PER COMPANY FROM THE AERONAUTICAL VALUE CHAIN

THE MAJOR PLAYERS*

Airbus	127 489
Thales	61 437
Safran	56 249
Leonardo	44 325
Rolls-Royce	31 800
Dassault	10 691
GKN Aerospace	10 160
MTU	9 783
AvioAero	5 700
FACC	2 851

NUMBER OF EMPLOYEES IN EUROPE AMONG THE BIG NAMES IN THE INDUSTRY (FINANCIAL DATA, YEAR 2023)

≠

THE SECTOR AS A WHOLE

France	695 employees / company
Germany	332 employees / company
Italy	286 employees / company
Spain	255 employees / company
Romania	177 employees / company
Switzerland	170 employees / company
Poland	129 employees / company
Belgium	115 employees / company

AVERAGE NUMBER OF EMPLOYEES PER LEGAL ENTITY AND PER COUNTRY
(EUROSTAT, SCOPE NACE CODE C303, LAST AVAILABLE YEAR : 2020)

* The major players also do an important proportion of their business outside the aeronautical sector.

6. ASD, Facts & Figures Civil Aeronautics, 2024
https://www.asd-europe.org/news-media/facts-figures/civil-aeronautics/
7. ASD, A European industrial strategy for civil aeronautics, 2/12/2025
https://umbraco.asd-europe.org/media/lsror1av/industrial-strategy-for-ca_web_singlepages.pdf?rmode=pad&v=1dc62fdf1b59750

Aeronautical subcontractors employ on average between 100 and 600 employees in Europe, depending on the European country, compared to more than 100,000 employees at the Airbus group. Behind the major players in the aeronautics industry, which employ more than 10,000 people, there are a myriad of medium-sized and small companies that make up the subcontracting chain. The European Commission estimates in one working document that 80% of companies in the aeronautics industry are medium-sized or small companies[8].

One of the difficulties in accurately assessing the weight and importance of the aeronautical value chain is the lack of reliable statistical data at European level. Each regional aeronautical cluster has a different definition of its value chain, and the aeronautical value chain draws on a variety of different skills that correspond to different statistical codes (see **FIGURE 3**).

This is why many aeronautical subcontractors are not single-sector companies. They are present in several different industries, such as IT, engineering and automotive. The multi-sector opportunities available to aeronautical subcontractors are both a strength and a weakness. The diversity of opportunities offers a certain resilience in the event of a crisis in one sector. Conversely, however, the automotive crisis can undermine the economic stability of certain aerospace subcontractors whose aerospace activity alone is not sufficient to ensure adequate profitability.

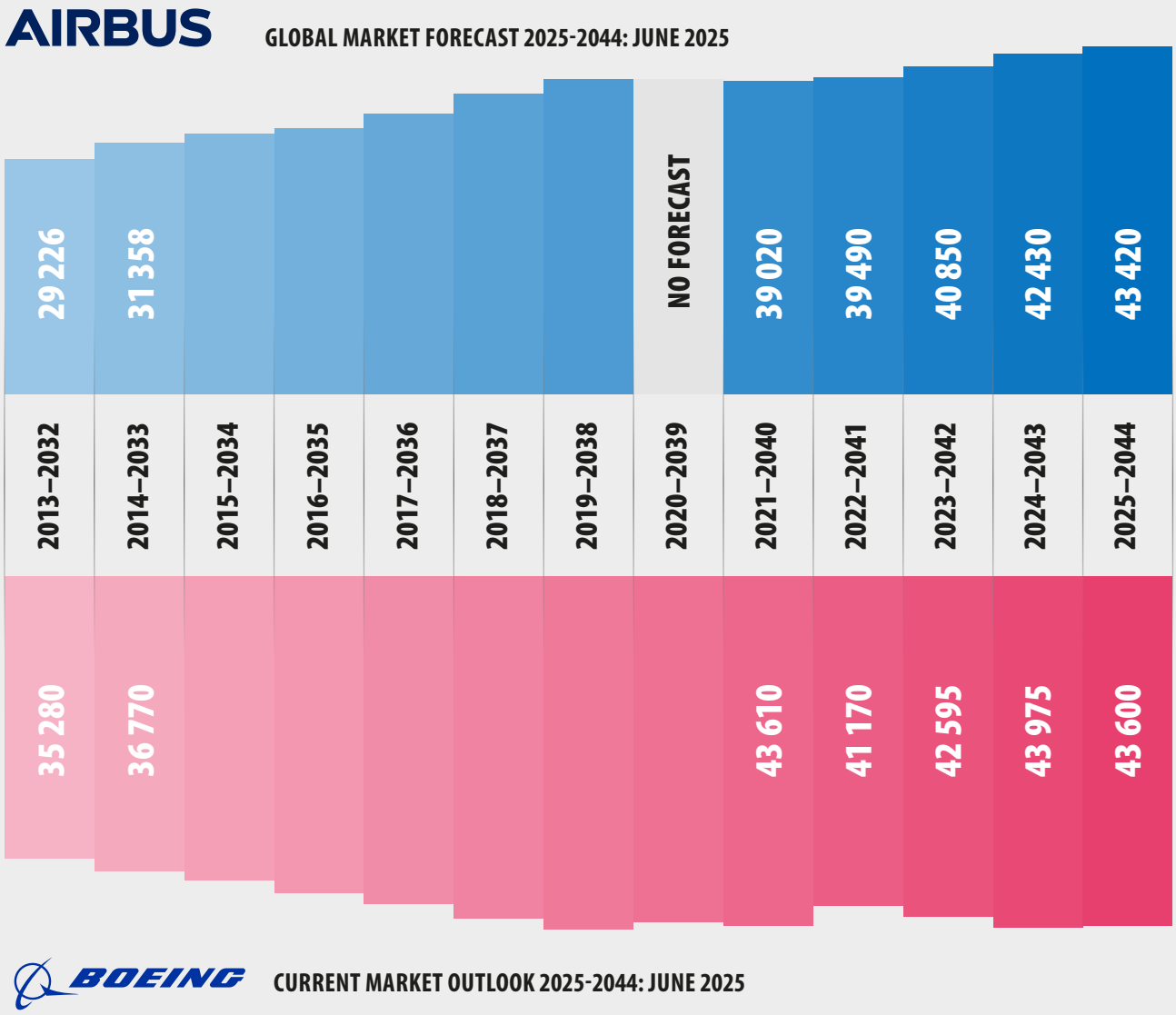
The outlook for the aerospace industry is excellent and focused on expertise

The aerospace industry is benefiting from strong global demand. With improving living standards in different regions of the world, demand for air transport is growing rapidly. Aircraft penetration rates remain low in countries such as India and China compared to developed economies and the size of the population in these countries. In many situations and countries, aircraft are the only means of transport that can cover distances in reasonable time and safety conditions.

The fundamentals for strong growth in air traffic and therefore demand for aircraft is good for the coming years. Overall, global air traffic has exceeded 2019 levels in all regions of the world and in most countries. Aircraft manufacturers agree on a need for around 40,000 new produced aircraft over the next 20 years (**FIGURE 6**).

8. European Commission, For a resilient, sustainable and digital aerospace and defence industrial ecosystem: Scenarios for a transition pathway, Commission staff working document, 25 July 2023
https://defence-industry-space.ec.europa.eu/system/files/2023-07/SWD_2023_280_1_EN_document_travail_service_part1_v3.pdf

FIGURE 6: ANNUAL FORECASTS FOR CUMULATIVE NEW DELIVERIES OVER 20 YEARS
IN THE LONG TERM, THE GLOBAL FLEET IS EXPECTED TO DOUBLE BY 2044 (43,500 AIRCRAFT IN OPERATION, COMPARED WITH 24,730 TODAY).



Most of the growth in air traffic and aircraft demand will come from overseas: China and India will see the strongest growth in passenger traffic volume, with annual growth rates of over 5% per year. All regions of the world will see growth in traffic and aircraft demand. Western Europe and North America are currently the most mature markets, and their growth rates will be among the lowest, but nevertheless positive.

According to ASD's report on 'A European industrial strategy for civil aeronautics', the European civil aeronautics generated €108 billion revenue in exports in 2024[9]. Already heavily export-oriented, the European aerospace industry will clearly continue to focus on exports. For instance, today, 85% of Airbus jobs are based in Europe[10], but more than 75% of Airbus current orders are for countries outside of Europe[11].

Aeronautics and defence are currently the only two European industries out of 11 identified as having favourable prospects in the coming years, according to industriAll Europe and the consultant company Syndex review of the European industry, as summarised in the study Ending EU Naivety[12]. While prospects for civil aeronautics are favourable, with order books at record levels, the European civil aerospace sector remains highly dependent on exports, which may be affected by geopolitical decisions and external crises.

The aerospace industry is unable to meet the high demand for aircraft

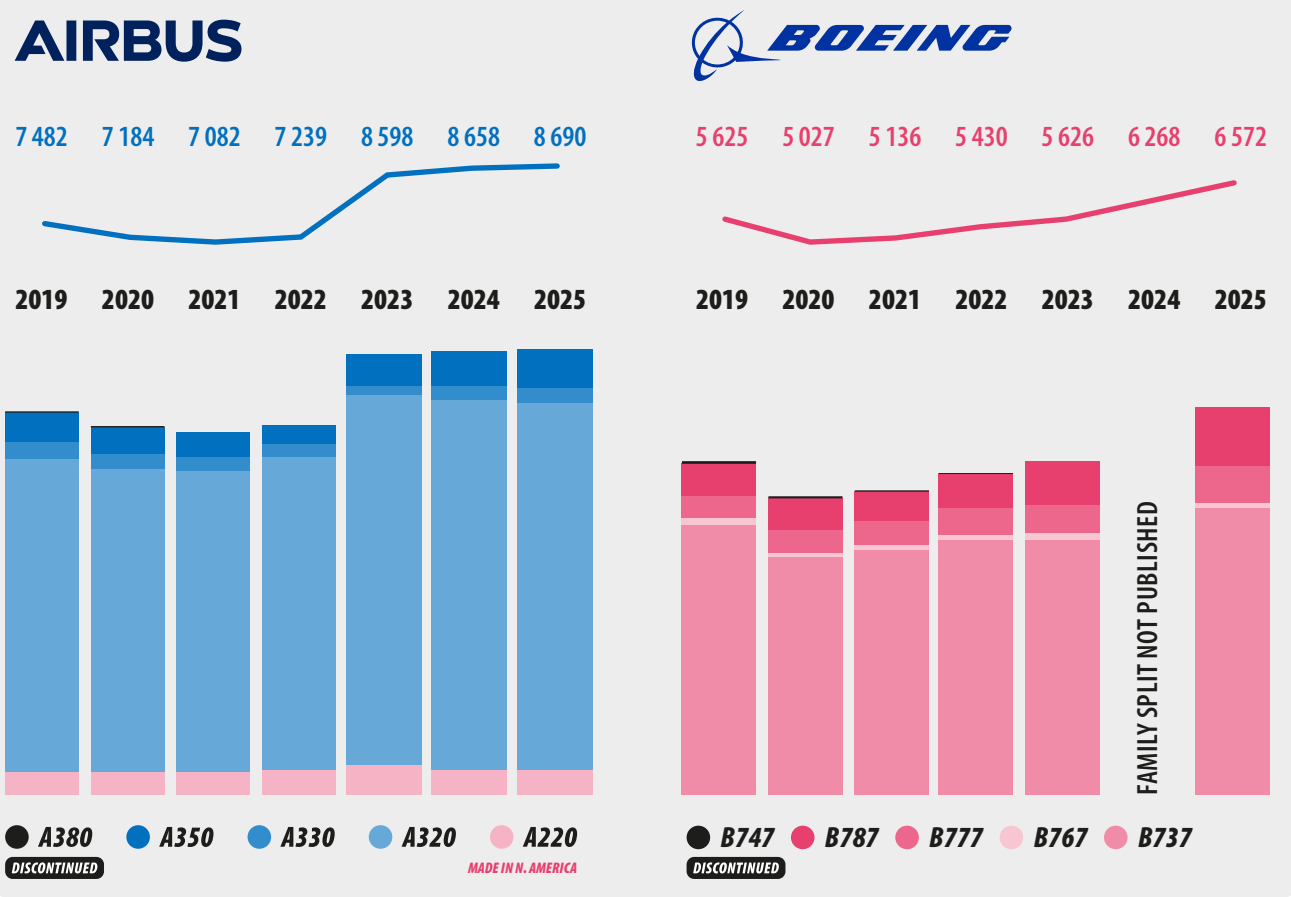
MANUFACTURERS' ORDER BOOKS ARE FULL AND THE AVIATION INDUSTRY IS UNABLE TO MEET DEMAND

Despite very strong demand, Airbus and Boeing are producing far below their historic peaks. The gap between what airlines need and what manufacturers can actually deliver is structural, not temporary.

In 2024, Airbus deliveries were around 12% below 2019, while Boeing's were about 57% below 2018. At the same time, the global order book exceeds 16,000 aircraft, more than ten years of production at today's output, showing that demand is not the problem, capacity is.

Airbus alone has over 8,600 aircraft in backlog and would need more than 11 years at the 2024 delivery rate to clear its order book, while Boeing's adjusted backlog is close to 5,700 units (**FIGURE 7**).

FIGURE 7: AIRBUS AND BOEING ORDER BOOK – July 2025



9. ASD, A European industrial strategy for civil aeronautics, 2/12/2025
https://umbraco.asd-europe.org/media/lsror1av/industrial-strategy-for-ca_web_singlepages.pdf?rmode=pad&v=1dc62fdf1b59750
10. Airbus Annual Report 2024, URL : Airbus Annual Report 2024
11. Airbus, Orders and deliveries commercial aircraft, November 2025
https://www.airbus.com/en/products-services/commercial-aircraft/orders-and-deliveries
12. Syndex, Ending EU Naivety, 5/12/2025
https://www.syndex.eu/news/news/european-industry-tipping-point-new-study-syndex

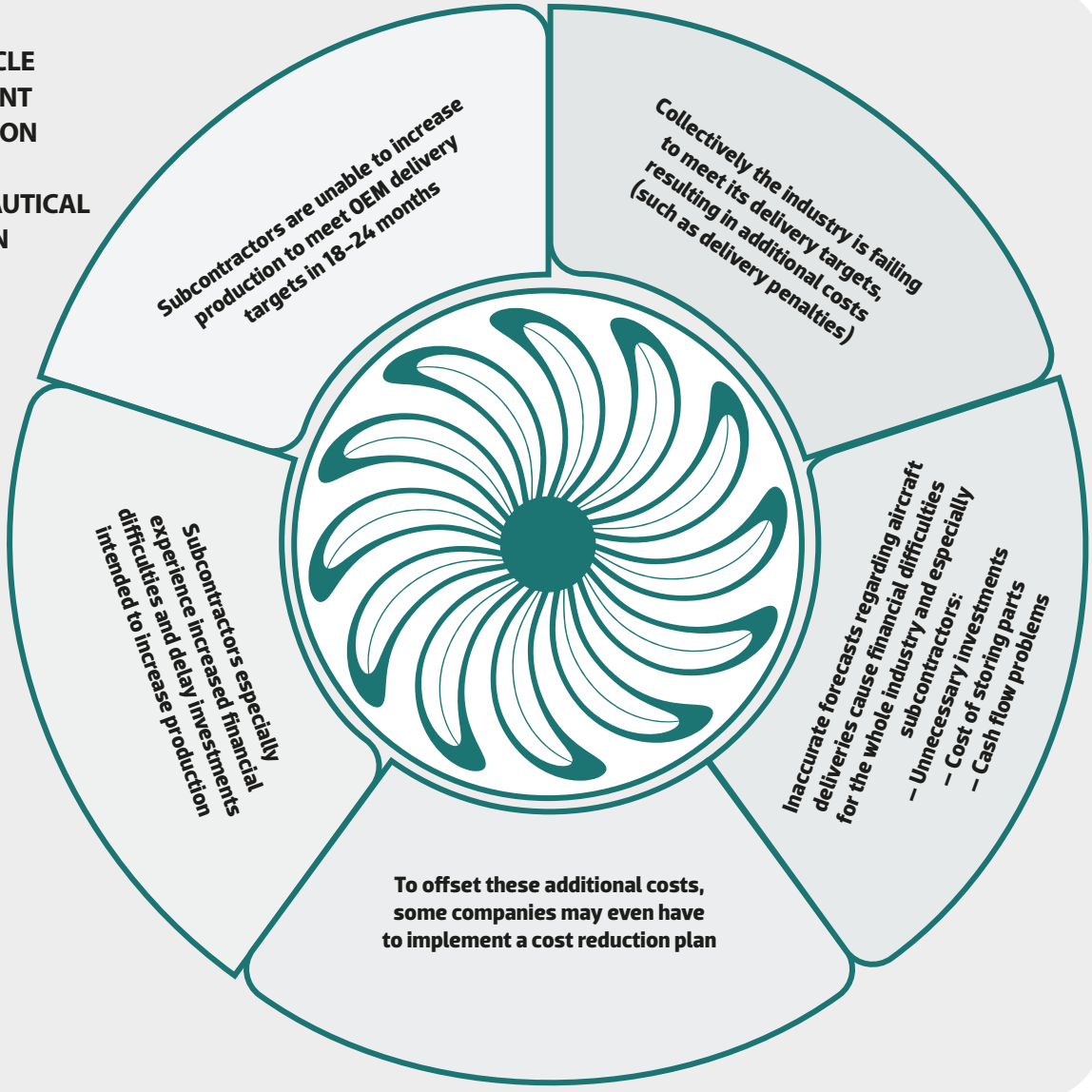
NO VISIBILITY: AIRCRAFT DELIVERY TARGETS ARE COLLECTIVELY MISSED, PUTTING THE WHOLE INDUSTRY IN A PRECARIOUS VICIOUS CIRCLE

To meet the expectations of customers and investors, manufacturers announce ambitious ramp-up plans, but these targets are often missed by the industry. The ongoing postponement of targets caused by some suppliers can negatively impact other subcontractors.

This may be illustrated by the UK supplier Senior: Airbus has pushed its A320 rate-75 target out by roughly 2.5 years to 2027, while Boeing decreased its 737Max production due to strikes and regulatory challenges, forcing Senior into cost-cutting, job reductions and furloughs[13]. If some suppliers belong to bigger corporations they could have enough resources to withstand reduced orders without forced job cuts, however, there are several examples of weaker suppliers having to reduce costs while being part of a booming industry because of postponed industry targets.

Inaccurate forecasts can lead subcontractors to over-invest in capacity, carry excess inventories and suffer cash-flow strains; in response, OEMs (original equipment manufacturers) launch cost-cutting plans that push prices down the chain, which in some cases further discourages suppliers from investing in the capacity needed to meet future targets—creating a vicious circle (see **FIGURE 8**).

FIGURE 8: VICIOUS CIRCLE OF INEFFICIENT COORDINATION INSIDE THE AERONAUTICAL VALUE CHAIN



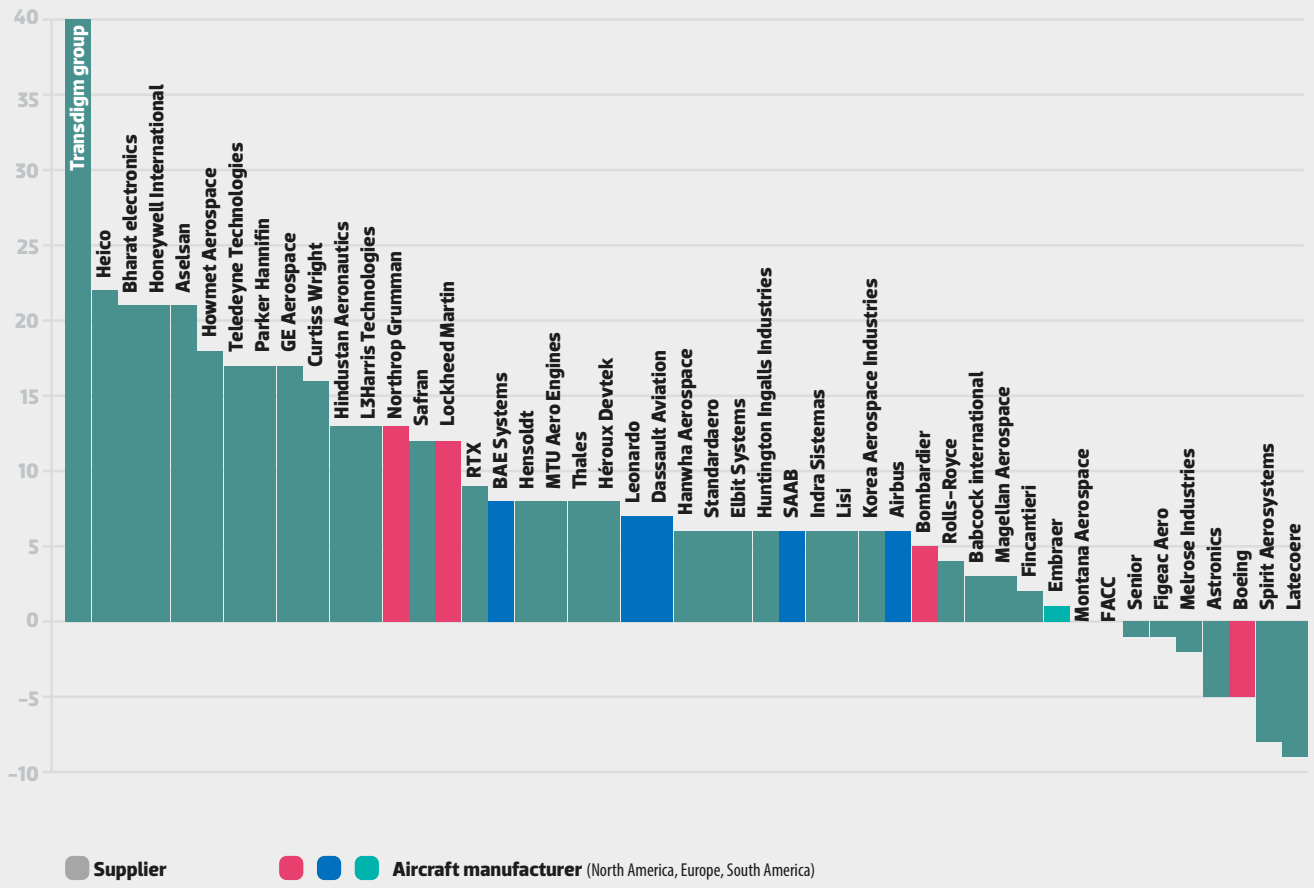
13. Reuters, UK's Senior cuts workforce to weather Boeing and Airbus problems, shares slump, 8/10/2024 https://www.reuters.com/world/uk/uks-senior-cuts-jobs-amid-aerospace-sector-challenges-2024-10-08/

For many smaller firms, visibility is extremely short term: for example in France in 2025, only 12% of aerospace subcontractors have an order book longer than one year[14], even though Airbus and Boeing are fully booked for the next decade. OEM may give guidelines of their production output beyond one year for some suppliers, but for a significant number of supplier's firm contracts are only done for 6 to 12 months in advance. That visibility is insufficient to invest in the ramp-up of production, find and recruit workers, and convince banks or new shareholders to finance the growth opportunities. In the aeronautic value chain, firm contracts with subcontractors needs to be extended to enable suppliers to invest in increased capacity production.

BIG ORDER BOOKS BUT RELATIVELY LOW PROFITS

Paradoxically, these record backlogs do not translate into high profitability for aircraft manufacturers. Over 2019–2024, many key suppliers achieved double-digit EBIT margins (often above 10% or higher) while Airbus hovered around 6% and Boeing posted an average loss of about 5% (**FIGURE 9**).

FIGURE 9: PROFITABILITY OF MAIN PLAYERS OF THE AERONAUTICAL INDUSTRY[15]



14. Direction général des entreprises, les sous-traitants aéronautiques face au défi de la montée en cadence, juillet 2025 https://www.entreprises.gouv.fr/files/files/Publications/2025/Etudes/202507-aeronautique-sous-traitance.pdf
15. Usine nouvelle, Le classement des 80 premières entreprises mondiales de l'aéro les plus performantes financièrement, 26/09/2024 https://www.usinenouvelle.com/article/le-classement-des-80-premieres-entreprises-mondiales-de-l-aero-les-plus-performantes-financierement.N2219212

A comparison of global manufacturers shows that, regardless of company size, segment mix or order book depth, most OEMs struggle to exceed 10% profitability, with several major players such as Embraer and Bombardier at just a few percent, and Boeing significantly negative. This means manufacturers are caught between the need to invest massively in industrial capacity and new programmes and the reality of structurally modest or even negative returns.

HOW TO PLEASE THE FINANCIAL MARKETS – AND THE CONSEQUENCES FOR THE INDUSTRY

In this context of weak margins, financial markets push OEMs to "create value" in the short term through shareholder remuneration and ambitious growth promises. Boeing is the extreme case: between 2013 and 2024, it distributed about USD 65.5 billion to shareholders via dividends and buybacks, compared with only USD 35.5 billion invested in new projects, most of it after the 737 MAX crisis.

Airbus has been more balanced, around EUR 28.7 billion invested versus EUR 12.3 billion returned to shareholders over the same period. But it is still under strong financial pressure despite partial state ownership. One way to convince investors is to announce aggressive delivery targets, as in the current 2025 plans, but when these targets prove unattainable, they undermine credibility, trigger cost-cutting, and propagate instability throughout the supply chain.

In the end, the effort to satisfy financial markets with high promised growth and generous payouts may be starving the industry of the long-term investment and predictable planning needed to actually deliver the aircraft that airlines and passenger demand.

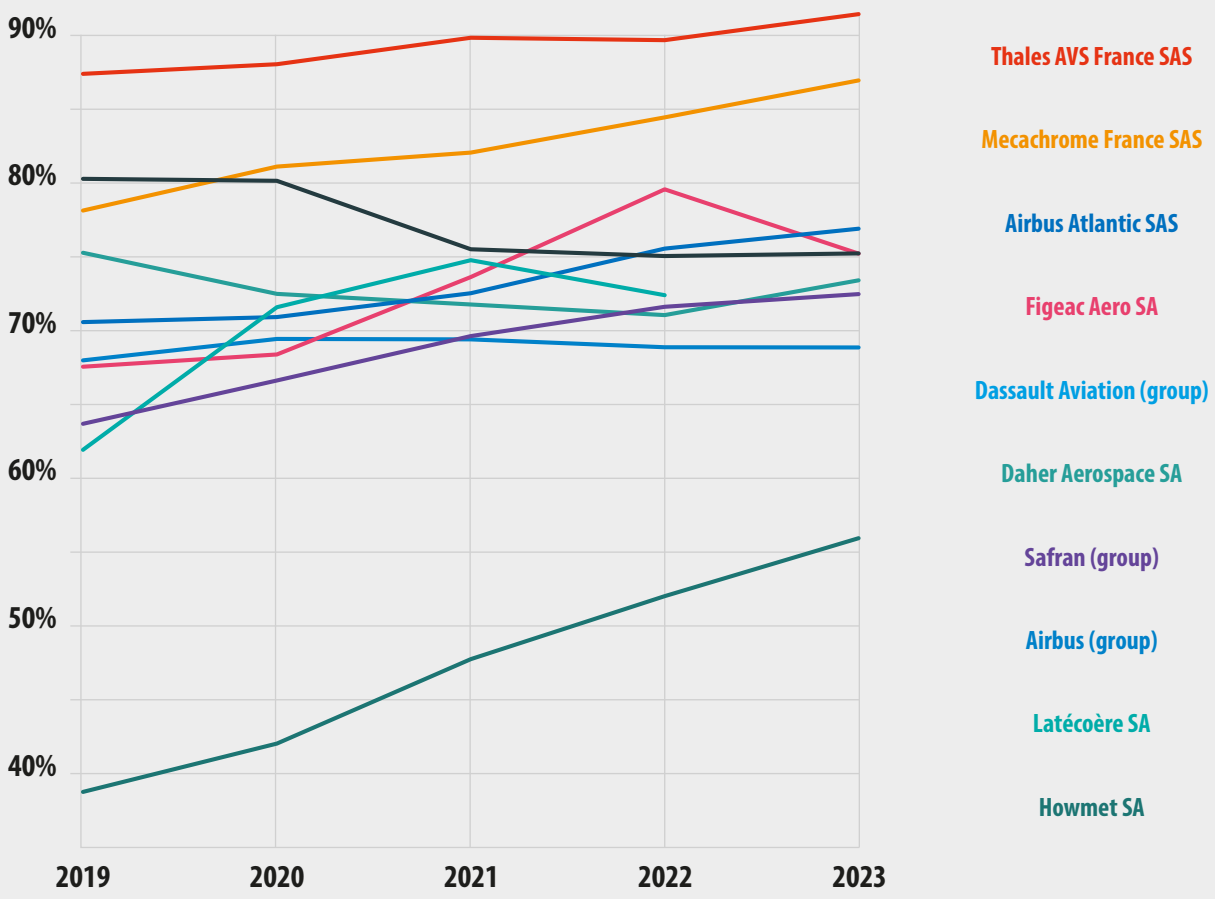
While some suppliers can keep value, most are under strong pressure (despite being part of a booming industry)

IT TOOK MORE THAN FIVE YEARS FOR MOST SUPPLIERS TO RETURN TO THE PRE-COVID LEVEL

Although demand has recovered strongly, the financial and industrial recovery of suppliers has been slow and uneven. Profitability data for 2019–2024 show that only a handful of large, highly specialised suppliers (Howmet, GE Aerospace, Safran, MTU) consistently reach double-digit EBIT, while many aerostructure players hover around zero or negative margins. The sector is also structurally dominated by small and mid-cap firms, with typical company sizes of 100–600 employees, far from the scale of Airbus, Safran or Rolls-Royce. These smaller firms had less cash and weaker balance sheets to absorb the Covid shock, so getting back to pre-crisis activity and profitability has taken them more than five years, and some still haven't fully recovered. Limited cash generation since 2020 is visible in ageing production assets and postponed investments for some companies.

This is the case for a studied sample of French companies (**FIGURE 10**).

FIGURE 10: OBSOLESCENCE RATE OF EQUIPMENT AND TOOLS OF 10 FRENCH AERONAUTICS COMPANIES (BASED ON BALANCE SHEET DATA)



The obsolescence rate graph is based on public available information from the balance sheets of seven French suppliers (Daher, Howmet, Figeac, Airbus Atlantic, Mecachrome, Thales AVS and Safran) and two aircraft manufacturers (Airbus and Dassault).

It appears that for most suppliers, the obsolescence rate of their equipment and tools strongly increased between 2019 and 2023. This means that equipment and tools are becoming older and may suggest underinvestment. If investments to increase productivity and capacity were implemented, the trend should have been the opposite: a decrease in the obsolescence rate of equipment and tools.

Contrary to these studied suppliers, the aircraft manufacturers invested during that same period in their equipment and tools, as their obsolescence rate improved (Dassault) or remained almost identical (Airbus).

Lack of investment is a major concern to achieve the ramp-up of production the whole industry is looking for. Especially if suppliers don't want or are not able to invest. The lack of investment is often linked to difficulties to access cheap financing options and not enough visibility in their order book. In addition to costly financing options, short-term shocks, such as delayed production targets, consume a lot of cash, thus decreasing further the ability of some suppliers to invest in their existing plants.

THE INDUSTRY TREND IS NOW TO ENFORCE DUAL SOURCING. IS IT GOOD FOR EUROPEAN SUPPLIERS?

While it took almost five years from a workforce perspective to return to the pre-Covid levels, there are still many supply chain disruptions in the sector. A study done on the main companies in the aeronautic industry based in France, United Kingdom and Germany shows that 64% of companies faced supply chain disruptions in 2025[16], compared to 66% in 2024[17]. On the side of supply chain disruptions, no major improvement is observed suggesting that the industry is facing structural issues.

In response to recent supply chain disruptions, OEMs and major suppliers are rolling out dual local/international sourcing models. A 2024 survey shows that nearly a quarter of firms already run a global set-up with a parallel local supply chain, and this share is expected to grow in the coming years[18]. According to that study, some OEMs already demonstrate that 1/3 of their supply chain is dual source (local and international source). The share of exclusive European supply is likely to be reduced in the coming years. In 2024, these same OEMs indicate that less than 1/4 of their suppliers are exclusively European (no other sourcing apart from a European one). This underlines how internationalised the sourcing base of major OEMs has already become.

For instance, Safran has formalised this approach: its CEO describes a "resilience strategy" aimed at avoiding dependence on a single source or single point of failure[19]. In practice, this means that long-standing European suppliers now compete directly with non-European rivals for the same programmes.

Dual sourcing strengthens OEMs' negotiating power and improves resilience, but it also intensifies price competition and reduces volume security for European suppliers. Instead of deep, long-term industrial partnerships with one key supplier, OEMs keep an alternative source in reserve – which structurally limits visibility and makes investment decisions riskier for European SMEs and mid-caps.

Overall, for the industry, dual sourcing also generates complexity and additional costs. Dual sourcing potentially increases risks within the European industrial fabric - which is struggling to structure itself to meet this high level of demand - as some additional activities are relocated elsewhere in the world. The current fragility of the European aeronautical industrial base is preventing adequate investment, while investments outside Europe continue to grow.-

16. Roland Berger, Aerospace: Building resilient supply chain, 3 July 2025 https://www.rolandberger.com/en/Insights/Publications/Aerospace-supply-chain-report-2025-Is-the-crisis-over.html
17. Roland Berger, Aerospace: Building resilient supply chain, 6 June 2024, Aerospace: Building resilient supply chains | Roland Berger
18. Ibid
19. BFM Business, Aéronautique : la chaine de production de l'usine Latécoère menacée de délocalisation, 16 octobre 2025 https://www.bfmtv.com/economie/entreprises/aeronautique/safran-veut-eviter-d-etre-dependants-d-une-source-unique-le-groupe-choisit-le-maroc-plutot-que-la-france-pour-construire-de-nouvelles-usines_AD-202510160439.html

WHERE WILL THE ADDITIONAL DEMAND FOR AIRCRAFT BE PRODUCED? WHAT ARE THE RISKS OF RELOCATION?

The aeronautic industry is so far more protected from relocation than other industries, such as the automotive sector. Indeed, competencies and regulatory constraints make relocation more difficult and costly. For security reasons, each new plant needs to obtain specific certifications from the regulator or the aircraft manufacturer which takes time and resources.

On the other hand, however, major airplane contracts often incorporate offsetting measures. Suppliers and aircraft manufacturers are supposed to provide economic or industrial benefits to the buyer's country as part of a large aircraft purchase. As a result, aircraft manufacturers are pushing their suppliers to relocate some of their activity in the buyer's country. While that policy affects workers in Europe, the exact scope of the offsetting measures is most of the time unknown for trade union or workers' representatives.

If offset is a motivation for relocation, companies are also pro-actively taking advantage of it to protect or increase their margins. Under the narrative of best-cost solution, some major players increasingly relocate or expand production in lower-wage countries. Relocation risk seems higher for "built-to-print" subcontractors or labour-intensive activities such as aerostructures. Without adequate information, it is not possible for workers' representatives to know precisely which part of relocation is due to offsetting measures and which part is pro-actively done by the company.

Complex and specialised tasks may also be relocated. For instance, for the first time in its history, Safran is setting up final jet-engine assembly lines outside Europe, with major investments in Casablanca (Morocco) and Querétaro (Mexico) for LEAP-1A assembly and MRO capacity. These projects create thousands of jobs in Morocco and Mexico, while in Europe, new sites tend to be highly automated and create relatively few new jobs. As it is already common for most companies from the aeronautics industry, there will be internal competition inside Safran between the European and the African assembly line.

THE NEED TO INVEST MORE TO ACHIEVE AND MEET DEMAND

At the very moment when the sector needs massive investment (digitalisation, automation, decarbonisation, capacity ramp-up), many suppliers have limited room to invest. As shown earlier, most firms in the ecosystem are SMEs or mid-caps with much smaller financial resources than the big names. Even among the larger suppliers, profitability is highly uneven; several aerostructure specialists are close to or below zero EBIT for 2019–2024, leaving little internal cash to finance new equipment or green technologies.

At the same time, they face a dense cluster of structural challenges: price pressure, labour shortages, supply difficulties, consolidation, automation needs, decarbonisation requirements, and persistent lack of visibility on future volumes. For many small and medium suppliers, being part of a "booming" industry therefore means simultaneously dealing with full order books, squeezed margins, relocation risk and under-investment, while only a small group of large, high-value-added suppliers is truly able to keep and grow its share of the value created.

Decarbonisation will disrupt the industry, and a lot of uncertainties still exist around the right solution

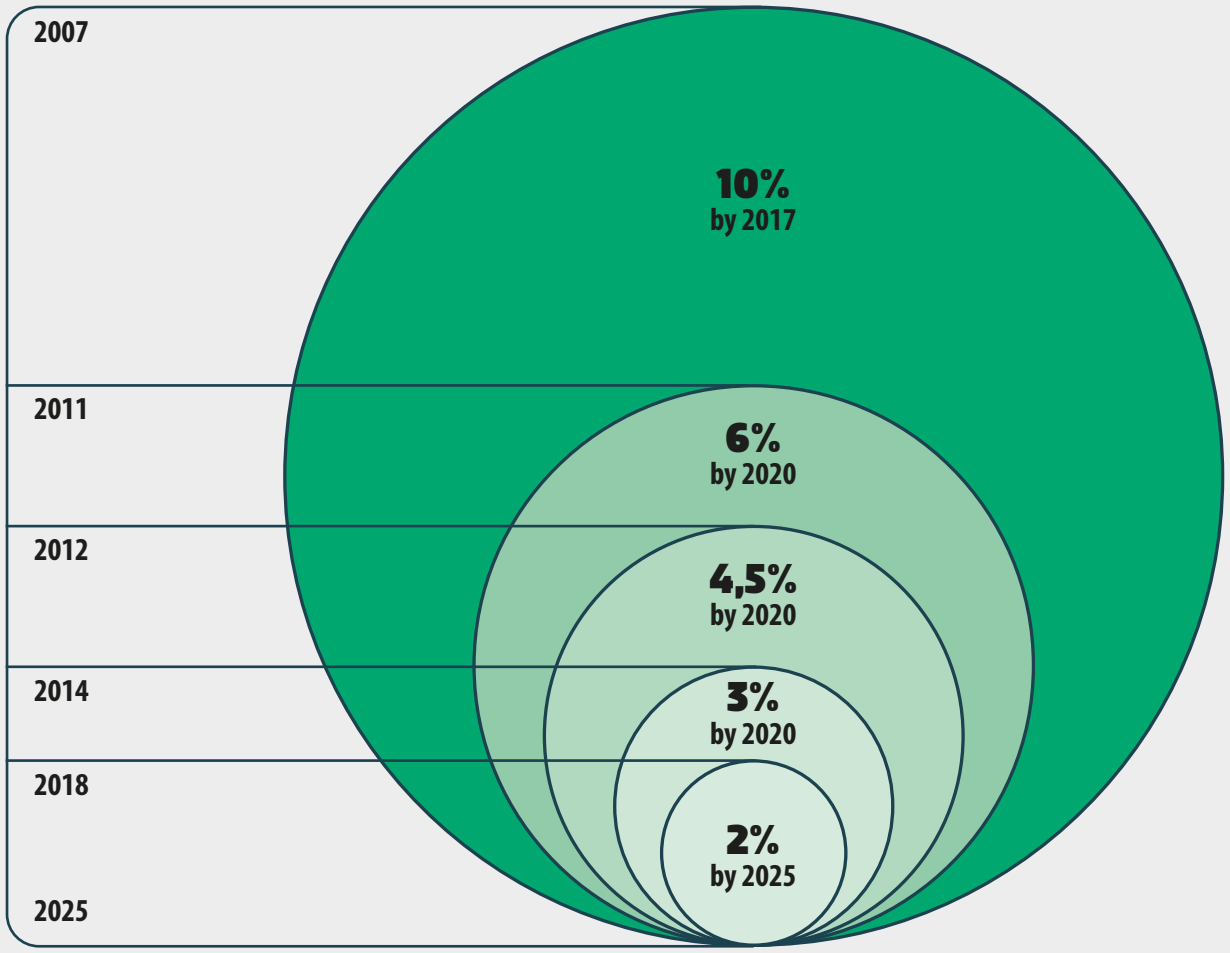
The air transport industry accounts for 2.5% of global CO2 emissions and up to 5% of global warming. Aircraft pollute most when flying and almost 2/3 of emissions of sectors are produced by the long-haul flights which represent less than 1/3 of all flights. It is the act of travel and of flying which is polluting, which poses a huge challenge for the sustainability of the industry.

The sector has no short-term 'silver bullet' technology, unlike the automotive industry. Unlike cars, there is no short-term technological solution for aviation. Moreover, it seems likely that the market may become fragmented around different competing technologies: hybrid and electric planes for short-haul, hydrogen for medium-haul and SAF for long-haul planes.

To sum up, there is still a great deal of uncertainty surrounding the technological choices to be made for green aircraft, and the question of risk-sharing between players in the industry seems unavoidable.

The current main lever (SAF) is described as 'not secure': production is not ramping up fast enough, fleet renewal is too slow, and required investments in SAF production are unrealistic compared with the Net Zero Roadmap. There is a long history of missed SAF targets (IATA's 20 years of unfulfilled promises – **FIGURE 11**), which underlines the uncertainty about the actual path to decarbonisation.

FIGURE 11: 20 YEARS OF UNFULFILLED, POSTPONED OR ABANDONED IATA PROMISES[20]



At the same time, regulation is tightening (CS3D, ReFuelEU: mandatory SAF shares rising to 70% in 2050), which structurally forces changes in the business model, industrial footprint and investments. Nevertheless, the current SAF-centric roadmap seems uncertain and almost unrealistic: SAF is still two to four times more expensive than current jet fuel[21], and global production of SAF is currently well behind the trajectory for a decarbonised aviation sector.

This means the sector must look at other technological levers (weight reduction, propulsion architecture, electrification, new alloys, etc.). That implies no single, obvious technology path. Hydrogen is explicitly presented as a long-term, not-yet-mastered solution, with Airbus postponing its hydrogen aircraft schedule – again reinforcing that the technological choice is not stabilised.

There are many obstacles to decarbonisation, also financial ones, especially for suppliers and subcontractors. There are limited financial and human resources among suppliers and subcontractors to work on the aircraft of tomorrow. They are barely keeping up with the production ramp-up, let alone preparing for new green technologies.

This raises the question how European aeronautical subcontractors will be able to position themselves for the medium-term challenges of green aircraft, especially in cases of technological breakthrough. If current technologies-are unable to decarbonise airplanes, a new supply chain for the green airplane will be needed. How will the transition from the current supply chain to the new one happen? Which could impact on workers?

Europe's leadership position in the aeronautics industry cannot be assumed to be secure, especially regarding the disruptions a green airplane will embed. The crisis in the automotive sector illustrates how even a highly innovative and once-thriving European industry can be significantly weakened when major technological transitions — and the necessary adaptation of industrial capacities and infrastructure — are not anticipated and managed effectively. ASD came to a similar conclusion in their strategical report for the industry from 2025[22].

According to the 2025 study Ending EU Naivety, 16 out of 19 industrial sectors in Europe are facing critical risks[23]. Aeronautics remains one of the few sectors that continues to demonstrate resilience and growth. This situation underscores the need to draw lessons from past shortcomings in EU industrial policy, in order to prevent the aerospace sector from facing a similar crisis in the near future.

The following recommendations developed in this paper aim to enable the entire industry — including workers and suppliers — to achieve a Just Transition.

20. Wearepossible, Missed Targets a brief history of aviation climate targets, may 2022
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RECOMMENDATIONS TO STRENGTHEN COORDINATION INSIDE THE EUROPEAN AERONAUTICS SUPPLY CHAIN

Recommendation N°1

UPDATE A EUROPEAN INDUSTRIAL STRATEGY FOR CIVIL AVIATION FOCUSING ON SOVEREIGNTY AND JUST TRANSITION ISSUES (E.G. EUROPEAN WHITE PAPER ON THE AERONAUTICS INDUSTRY), WITH EUROPEAN SOCIAL PARTNERS' INVOLVEMENT AT ITS CORE

Concern

Although Europe has a long, successful aeronautics history and a dense network of regional clusters, the current policy framework has not kept pace with how integrated, globalised and fragile the value chain has become. The industry is still largely anchored in Western Europe and the UK, but relies on a fragmented subcontracting base made up mostly of SMEs and mid-sized firms, many of which are invisible in statistics and juggle multiple sectors. At the same time, civil aviation is strongly export-oriented, with most aircraft produced in Europe but sold worldwide, and future growth in demand coming mainly from third countries. This combination of strategic dependence on exports, complex cross-border supply chains (including a key UK role post-Brexit), and uneven resilience across the value chain, raises issues of sovereignty (control over critical capacities, data and jobs) and Just Transition (who pays and who benefits from the green and technological transition). An updated European industrial strategy, for example through a White Paper on the European aviation industry is therefore needed to map the full value chain, include clusters and sub-contractors (not only OEMs), and explicitly integrate both sovereignty and social/territorial justice, while involving the UK as a central partner in this European ecosystem.

Recommendation N°2

DEVELOP A NEW RISK-SHARING POLICY BETWEEN MAIN CONTRACTORS AND EUROPEAN SUBCONTRACTORS: A GREATER PROPORTION OF RISK HAS TO BE TAKEN BY THE ORIGINAL EQUIPMENT MANUFACTURER (OEM) COMPARED TO TODAY

Guidelines for the sector at different levels, including worldwide

Concern

Major OEMs rely on thousands of suppliers across multiple continents. Any misalignment between these actors creates systemic risk. Without harmonisation, risk management becomes fragmented and reactive inside the industry. On the other hand, long-term partnership improves stability, reduces adversarial relationship, and those support employment.

OEM delivery commitments must also bind OEMs towards suppliers

Concern

Forecast and rate changes hit suppliers: OEMs shift targets and suppliers carry a significant cost because of it (over-investment, unused capacity, layoffs). Repeated downward revisions in delivery forecasts has impacted the whole industry in the last years.

Promote centralised purchasing structure for raw-materials

Concern

Stock and price risk often sits with suppliers: they pay for materials and prices are not necessarily adequately adjusted to raw material increases. Besides, suppliers suffer if OEMs change plans, because of insufficient or excess stock of raw materials. Cash-flow problems because raw materials are bought but parts are no longer needed.

Rebalance risks in exceptional situations (energy, inflation, crises)

Concern

Many suppliers (especially aerostructures) achieved near 0 or negative EBIT 2019–2024. During the Covid crisis, these suppliers have almost no buffer left: low margins, ageing equipment, and many parallel pressures make new shocks unmanageable.

Work on extending the duration of contracts and commitments between all parties

Concern

OEMs and large suppliers enjoy very long visibility on orders, whereas many subcontractors below tier-2 have less than one year of visibility. While being part of a booming industry, their order book is insufficient to invest in additional production capacities or recruit, and growth opportunities are missed.

Recommendation N°3

IMPROVE CASH AVAILABILITY FOR AERONAUTIC SUPPLIERS

Introduce reliable payment times by OEM

Concern:

Many SMEs and mid-caps operate with very thin margins and fragile cash flows; payment delays by OEMs amplify the vicious circle of cash-flow problems already highlighted for subcontractors.

Reduce suppliers' payment times – create a European standard for the industry

Concern:

The sector is dominated by SMEs and mid-caps with limited financial resources, they are currently squeezed between long payment terms, price pressure and the need to ramp up production.

Incorporate investment financing into subcontracting contracts

Concern:

Many suppliers have ageing equipment and "very limited room for manoeuvre" to invest after years of crisis, while ramp-up and new technologies require major capex.

Create a dedicated European Investment Bank (EIB) policy for aerospace sub-contractors

Concern:

The sector must finance transformation (automation, decarbonisation, new programmes) but many suppliers lack internal cash and collateral, especially those outside the small group of highly profitable players.

Recommendation N°4

REQUIRE EMPLOYMENT AND INVESTMENT COMMITMENTS IN RETURN FOR PUBLIC SUBSIDIES FOR THE AEROSPACE SECTOR

European preference

Content:

In a context of geopolitical tension, a geographically closer and politically aligned supply chain increases the resilience of the aeronautics industry. Besides, without such preference, short-term, cost-driven off-shoring may gradually erode Europe's industrial base for some parts of the supply chain.

A defined share of value creation and production to take place in the regions that provide the respective financial resources

Content:

If companies receive public funding to support the industry (in R&D, opening of factories, etc.), the companies should commit to produce in the regions that provide these financial means. Without visible regional return, political support erodes — threatening the necessary future programme funding.

Systematically include collective bargaining and a minimum number of apprenticeships & training as a condition for public funding

Content:

The sector faces labour and skills shortages alongside under-investment and ageing equipment, especially among SMEs and mid-caps that have "very limited room for manoeuvre" to invest in the future. Making public support conditional on minimum levels of apprenticeships and training ensures that subsidies not only support short-term recovery, but also rebuild the skilled workforce needed to sustain local production and future industrial transitions.

Recommendation N°5

INVOLVE SUBCONTRACTORS IN R&D FOR THE AIRCRAFT OF THE FUTURE, IN PARTICULAR BY IMPOSING A QUOTA FOR SMES RECEIVING PUBLIC FUNDING FOR AIRCRAFT

Coordinate the sector at EU level & improve coordination between contractors and subcontractors

Content

The pathway towards green aircraft remains marked by significant technological, regulatory, and market uncertainties. These uncertainties constrain investment decisions across the value chain, particularly for small and medium-sized enterprises with limited financial resilience. A coordinated and industry-aligned approach to the development and maturation of breakthrough technologies is therefore essential to de-risk innovation and provide greater planning security. In parallel, regulatory processes must be streamlined and accelerated to shorten the time-to-market and reduce the costs incurred between R&D phases and commercial deployment.

Public research funds should target more subcontractors

Content

Suppliers have "very limited room for manoeuvre" to invest after recent crises. Suppliers need to be more involved in research so that they are ready to be part of the next airplane value chain.

Link public subsidies and co-financed R&D to local production and manufacturing

Content

Several cases show that public support can end up financing know-how that is later relocated: Airbus has progressively shifted part of its supplier base and new capacity to lower-cost countries, such as Morocco, India and Mexico, while examples like Latecoère illustrate how a "factory of the future" co-financed in France was then closed and its activity transferred to Mexico and the Czech Republic for competitiveness reasons. Subsidised R&D and industrial investments that result in production in the funding country are therefore essential to protect the local industrial base and taxpayer-funded strategic capabilities.

Recommendation N°6

STRENGTHEN EUROPEAN AERONAUTICS CLUSTERS BY INCREASING COOPERATION BETWEEN THE VARIOUS STAKEHOLDERS IN EACH REGION (COMPANIES FROM DIFFERENT SECTORS, TRADE UNIONS, UNIVERSITIES, ETC.)

Increase the visibility of the aeronautics sector, particularly SMEs/mid-cap companies on the local labour market

Content

Companies in the aeronautic sectors face a shortage of workers, which is especially true for SME/mid-cap companies. There is often a lack of visibility on the local job market for the aeronautics industry and a need to improve vocational training at the local level.

Creating career paths between subcontractors and original equipment manufacturers (OEMs) in order to increase visibility on the labour market; develop mechanisms for secondment and job sharing between companies in the sector

Content

To offer better job opportunities for workers, organised, common career paths between subcontractors and contractors may be created. By joining a dedicated programme, workers may work in different local companies from the aeronautics industry in order to increase their skills and share experiences. The career paths between these different companies are organised by the aeronautics cluster, which also organises how that career path is financed. In that scheme, workers may access an attractive career path, and companies may gain more visibility of their turnover.

Establish local coordination between companies on cross-cutting issues (raw material procurement, cybersecurity, etc.)

Content

Small and mid-size cap companies are facing similar challenges on procurement, cybersecurity or worker shortages, while having limited resources. On these topics, local coordination may help companies to overcome these challenges.

Continue and increase the support for cybersecurity from OEMs for suppliers

Content

Cybersecurity is a threat for the whole aeronautics industry and OEMs are already supporting their supply chains on these topics. The burden of cybersecurity is too heavy to be carried only by suppliers, and support from OEMs should be continued.

Share information with employee representatives of the main contractors in their aerospace supply chains to enable coordination between employees in the supply chain and main contractors

Content

Workers' representatives of OEMs do not necessarily have an overview of their supply chain. This information should be shared with workers' representatives, as workers' representatives may help to anticipate difficulties in the supply chain. This would also create new channels of communication to identify difficulties within the supply chain through employee representation.

Recommendation N°7

MAKE WORKING IN THE AERONAUTICS SECTOR MORE ATTRACTIVE:

All companies should have worker representative structures

Content

Worker representative structures should be implemented in all companies in the aeronautical sector to ensure balanced decision-making, protect employees' rights, strengthen social dialogue, and enhance long-term organisational stability and performance.

All companies should have collective agreements

Content

All companies in the aeronautical sectors should be covered by collective agreements. This would enable a structured and transparent framework for working conditions, wages, and rights, ensuring fairness and predictability for both employers and employees. It is also an important element to make the sector more attractive for workers.

Establish permanent furlough scheme mechanisms in the various European countries that subcontractors can rely on in the event of an economic crisis to avoid loss of jobs and skills

Content

During the Covid-crisis, huge differences in job cuts have been observed between countries, such as Germany, that have permanent furlough schemes and countries without these mechanisms, such as the United Kingdom. Furlough schemes are proven tools to maintain key competences and jobs during a crisis, which enables these companies to bounce back.

Companies (suppliers and OEM) should reach a minimum rate of apprenticeships and training. If companies do not reach that rate, they should pay a fine which will go to national funds to support training for the aeronautics sector

Content

Companies complain about the lack of skilled workers. Apprenticeships and training are proven and useful tools to overcome these challenges. In some countries, like Germany, a minimum rate of apprenticeships is included in some collective agreements. A minimum rate of apprenticeships should be compulsory in order to train enough skilled workers. If the rate is not reached, the company should pay a fine to finance the training system and share the burden of training too.

Introduce work organisations that are family friendly and support approaches, like company-organised childcare, well equipped local schools, good public transport.

Content

Workers are not just employees — they are often also parents and caregivers whose stability directly affects productivity and well-being. Providing support such as company-organised childcare, access to quality local schools, and reliable public transport reduces stress, improves work-life balance, and promotes equal opportunities, particularly for women. Such measures strengthen the attractivity of the sector, employee retention, social cohesion, and long-term workforce sustainability.

Offer employees greater flexibility in terms of working hours, particularly for blue-collar workers

Content

Flexibility at the workplace is a strong demand from employees. With the Covid pandemic, the use of a home office has strongly increased for white-collar workers, and a large proportion appreciate the flexibility implied with a home office. Blue-collar workers are looking for similar flexibility, and these are achievable goals for the industry as well. Based on several case studies, the Hans Böckler Stiftung, in a 2021 study, demonstrates how a different work organisation in the industry may give workers more flexibility[24]

24. Hans Böckler Stiftung, Selbstorganisierte teamarbeit in betriebs- und dienstvereinbarungen, Study Nr 456, April 2021

Recommendation N°8

FACILITATE ACCESS TO A CHEAP FINANCE SOLUTION FOR THE EUROPEAN INDUSTRY, INCLUDING THE AERONAUTICS INDUSTRY AND ITS SUPPLY CHAIN

Redirect European private savings to the European industry

Content

The Draghi report on the future of European competitiveness notes that private EU household savings are higher in the EU (1390 billion euros) than in the US (840 billion euros), but that currently these savings are not channelled to productive investments[25]. Mechanisms should be built to facilitate the use of these household savings for the European industry.

Create low-cost and long-term financing options for European industry

Content

The European industry is lacking access to low-cost and long-term financing options. This is especially true for the aeronautics supply chain, which is struggling to finance its growth despite great growth perspectives.

Create an equivalent to the French Livret A savings account for European industry, including aerospace subcontractors

Content

One tool to redirect household savings for long-term investments in the industry may be to extend specific financial mechanism to the industry like the French Livret A. In these mechanisms, private savings are redirected into private companies of a specific sector, while deposits are guaranteed by the state. A public bank coordinates the allocation of the funds. Households take advantage of an almost risk-free investment, companies get access to cheap finance. The public-owned bank diversifies the risk through multiple companies and takes advantage of longer term goals of return on investments compared to private institutions.

Increase employee share ownership

Content

An increased non-executive employee ownership can be beneficial for both workers and the company. Academic research has shown that a higher non-executive employee ownership may increase the firm's performance, leading to higher innovation, higher productive investments, lower cost of debts and better environmental performance.

Encourage public investments in companies of European strategic importance for the sector

Content

Some companies in the aeronautics industry are of strategical importance. Direct public investments in these companies may be needed to ensure stability of shareholders and strategy, the alignment of their strategy with European interest and their independence.

25. M Draghi, The future of European competitiveness Part A, September 2024