Commercial Aerospace Insight Report

Navigating Recovery

October 2022

accenture

Executive summary

As we continue to navigate 2022, the darkest period for aerospace companies seems to be behind us. Driven by strong consumer demand, reopening of international borders, waning COVID effects and the tested efficacy of vaccines, the aerospace industry has reached recovery mode. Although issues such as supply chain disruptions and labor shortages in both aerospace and the broader economy are expected to linger for months to come, a positive outlook for the sector is on the horizon.[1]

Accordingly, aerospace executives are cautiously optimistic about the future. Of those surveyed by Accenture, 31% expect their revenue to increase over the next six months. This number increases to 81% when asked about revenue growth in the next 12 months.

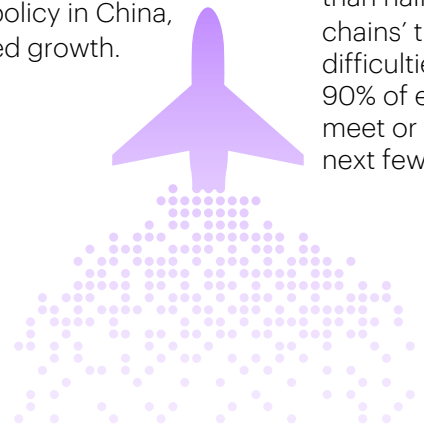
Industry growth, however, is likely to vary across geographies. Asia Pacific aerospace revenues could witness 10% higher levels in 2022 compared with 2019 levels. This would represent a much faster commercial aerospace recovery compared to North America or Europe, which respectively may still be 15% and 23% down versus 2019 levels.

Ongoing market recovery

Our outlook predicts 2022 global commercial aerospace revenues to grow at 13%, which would still be 20% down on 2019 levels. The outlook remains positive despite subdued 1H22 results from Boeing ($10.4B, 1% increase YoY) and Airbus (€17.5B, -1.6% decline YoY)[2] along with a strong dollar muting local currency growth gains for aerospace companies. Increased narrow-body production and deliveries (A320 and 737), as well as resumption of 787 deliveries, are likely to aid market recovery in the coming months. This is also supported by our survey responses, where 94% and 100% of executives predict higher deliveries across narrow-body and wide-body, respectively, for 2023.[3]

Airlines' robust revival

Revenue Passenger Kilometers (RPKs) are expected to increase by an astounding 98% in 2022, after an impressive 22% increase in 2021.[4] IATA forecasts a net loss of $10B for airlines in 2022, a remarkable improvement from losses of $42B in 2021, with a return to profitability predicted for 2023.[5] Despite the steady pace of recovery, full restoration to pre-pandemic passenger levels is 18 months out. Moreover, risk factors such as an oncoming economic slowdown, the Russia-Ukraine war, occurrence of a new COVID variant, or a prolonged zero-COVID policy in China, may present headwinds to anticipated growth.



Pandemic and macroeconomic concerns abound

Executives reported pandemic-induced disruption and worsening economic conditions as their primary concerns over the next six months.[6] Despite successful vaccination programs in most countries and additional government support initiatives, aerospace companies remain cautious about the possibility of localized outbreaks or emergence of new variants this fall and winter.

Supply chain issues persist

Aerospace companies continue to grapple with pandemic-related fallout on supply chains. China represents a particularly problematic link, with its zero-COVID policy still in force. Compounding the challenge, the Russia-Ukraine war has triggered further disruptions to supply chains, as aerospace companies are reliant on various raw materials, such as titanium, aluminum, nickel, copper, and steel, which are all sourced in large quantities from Russia.[7]

Only 22% of executives expect disruptions to their supply chain timeliness and quality in the next six months. This is a dynamic metric in today's environment, but marks a significant improvement on our previous report, where executive confidence in their supply chains reached all-time lows, with more than half of them lacking confidence in their supply chains' timeliness and quality. And despite ongoing difficulties, optimism seems to be returning: almost 90% of executives believe that their supply chains will meet or exceed expectations once we get through the next few months.[8]

Aftermarket on stable track to recovery

After weathering turbulent conditions in 2020 and 2021, the aftermarket is recovering with MRO providers expected to experience strong growth in 2022. Global commercial aircraft utilization in July 2022 was 26% higher in comparison to 2021 and only 15% down from 2019.[9]

With markets already in clear recovery mode, optimism is high among executives for the next 12 months. 79% expect increased MRO spending from airlines in this timeframe. However, their optimism is tempered by expectations for the next six months, where only 14% of executives expect higher airline spending and 81% anticipate flat spending levels.[10]

Unleashing potential with digitally enabled talent

While the COVID pandemic undoubtedly posed the greatest challenge for the aerospace industry in decades, it also lit a fuse for far-reaching change. Our survey revealed that a majority of executives (83%) think it is likely or very likely that their organizations will undertake a large-scale organizational or operating model redesign within the next two years, in order to improve performance or capture new opportunities.[11] For some companies, that transformation is already well underway. Rolls-Royce, for example, has embraced a more centralized structure, focusing on agility in decision-making.[12]

However, change on this scale cannot be made without a critical mass of digitally-enabled talents. To unleash their full potential and achieve new business objectives, organizations must have the right mix of digital talent and skills. As of now, it seems that most aerospace companies still have some way to go in achieving this.

Global outlook

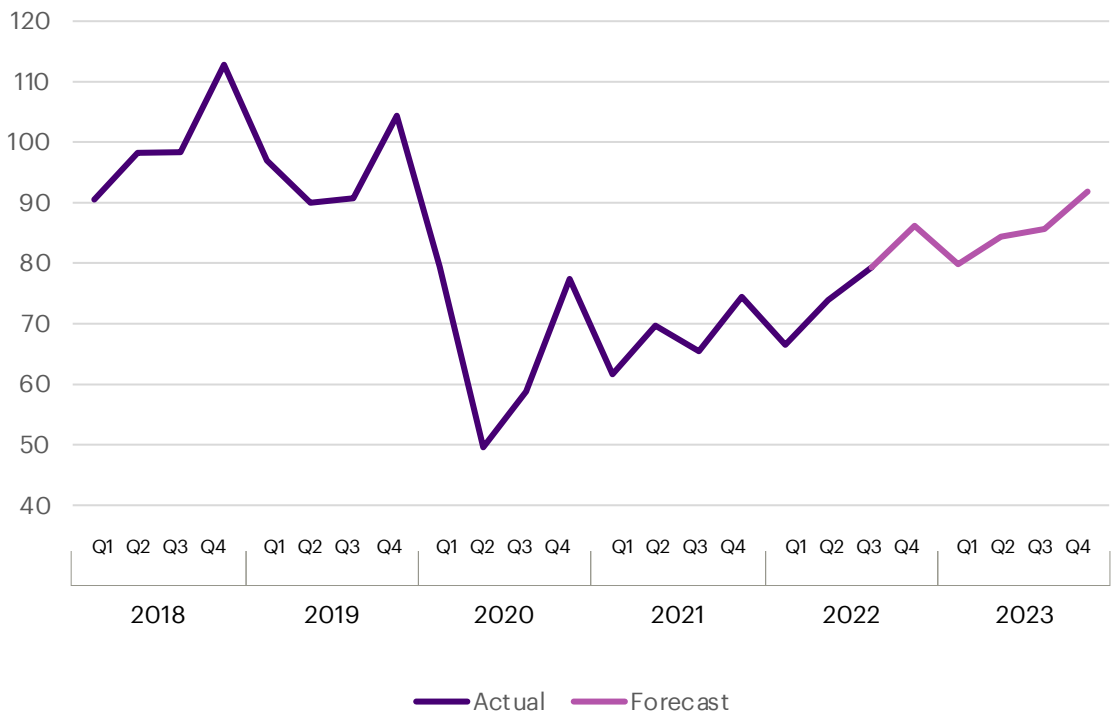
> We anticipate 2022 global commercial aerospace revenues to grow 13% YoY, driven by resurgence in traffic and favorable macro-economic conditions. However, the global industry will still be 20% smaller when compared with 2019.[13]

Despite supply chain challenges and the ongoing Russia-Ukraine war, the industry is positioned well for recovery in 2022. It is expected to recover to pre-pandemic in the 18 month timeframe, driven by the 737 MAX's approval to fly in every country (barring China), uplift of the 787 Dreamliner's suspension, and traction around A320s.

OEMs are regaining momentum continuing from last year. Overall commercial deliveries have increased by 13% in 1H22[14] and we expect that for the whole of 2022, delivery increase will be 24% YoY.[15]

Despite rather disappointing half-year results from Airbus and Boeing, 2022 is expected to record double-digit growth in global commercial aerospace revenues, growing at 13% YoY (figure 1). Growth in local currency is on track to meet this. A stronger dollar may mute these local currency growth gains for aerospace companies.

Figure 1: global commercial aerospace index (USD, 2018 = 100)



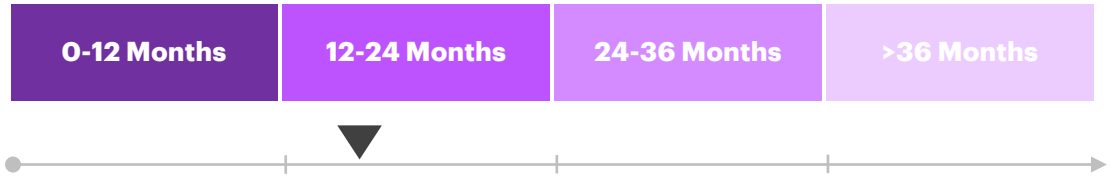
Airline performance

IATA estimates show the airline industry is expected to witness recovery across all regions in 2022, cutting annual global losses to $10B, compared to $42B of losses in 2021.[16]

Industry-wide passenger load factor reached 82% in June 2022, up 13 percentage points YoY; this was the first time since January 2020 that industry load factors crossed 80%. Industry capacity increased alongside passenger traffic, with Available Seat Kilometers (ASKs) growing 49% YoY, though capacity remains 28% lower when compared with 2019 levels. Easing of government restrictions, rising disposable incomes, and pent-up demand contributed to steady recovery and a strong summer travel season; however, inflation and higher interest rates might offset demand in the short-term.[17]

Our survey revealed that 72% of executives expect airline revenues to take between 12 to 24 months to recover to 2019 levels, whereas 22% expect a recovery period to 2019 levels in the next 12 months (figure 2).

Figure 2: airline industry recovery outlook compared to 2019 levels

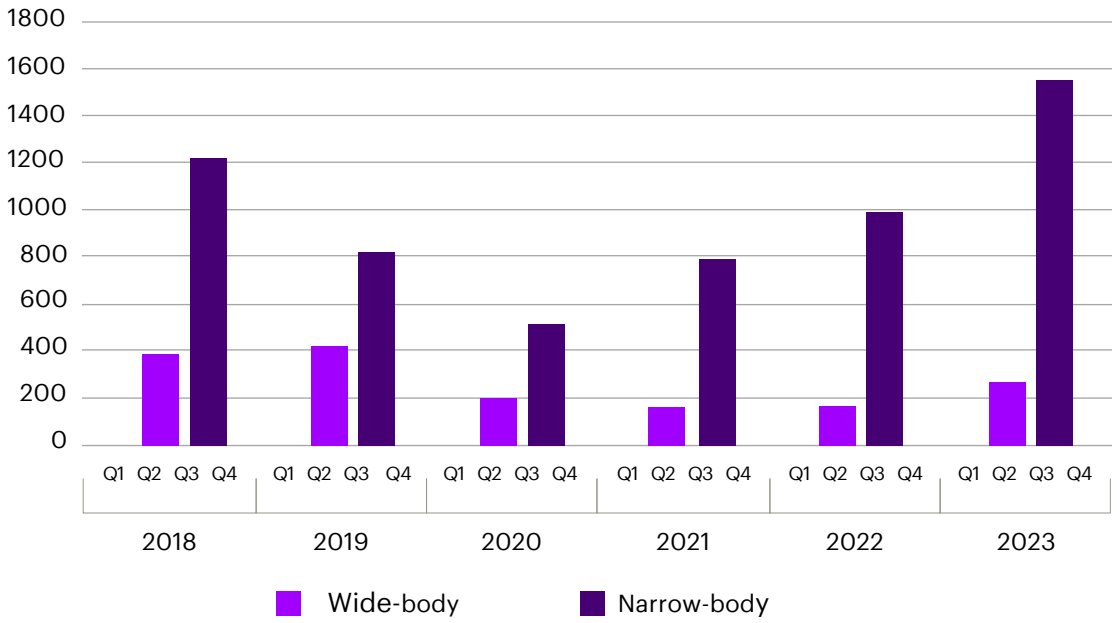


Airline financial performance is expected to improve across geographies in 2022, with North America being the only region that is expected to return to profitability this year.[18] Compared with 2019, the industry is likely to witness a 21% reduction in seats for 2022. While passenger numbers improved in 1H22, they are still anticipated to remain 27% lower in 2022 when compared with 2019 levels (while representing a marked improvement over 2021).[19]

Cost pressures will continue to be in focus. Specifically, oil, fuel, and labor costs have risen sharply, contributing to inflationary conditions and pushing central banks to lift interest rates, thereby impacting consumer discretionary spend.[20]

568 narrow-body deliveries accounted for the bulk of YTD deliveries, while wide-body YTD deliveries remained muted at 89.[21] In 2022, narrow-body and wide-body deliveries are expected to grow YoY by 26% and 14% respectively (figure 3).

Figure 3: historic and expected deliveries by year (Boeing and Airbus)



As we look toward the second half of 2022, airlines will likely continue to recover and reduce their ongoing losses, while still confronting broadly the same concerns as today. Incumbents will continue to balance growth aspirations with cautious cash flow management, especially in the wake of varied macro headwinds. There will, however, remain a significant portion of the global airline fleet which will need replacement in the next five years.

What keeps aerospace executives up at night?

Uncertainty due to the pandemic and worsening economic conditions remain the top short-term concerns for aerospace executives.

Executives expect pandemic-driven disruption and worsening economic conditions to be of greater concern over the next six months, while in the next 12 months, only the pandemic is considered as a factor of greater concern. This fear can be attributed to the havoc that COVID initially inflicted on the aerospace industry, along with the lingering possibility of another wave of disruption driven by a new variant of the virus.

Surprisingly, despite the Russia-Ukraine war, executives do not view regional armed conflicts or terrorism to be a greater cause for concern over the next two years. On the contrary, they expect the outlook for political instability, interest rate changes, and exchange rate changes to remain the same over the next 24 months (figure 4).

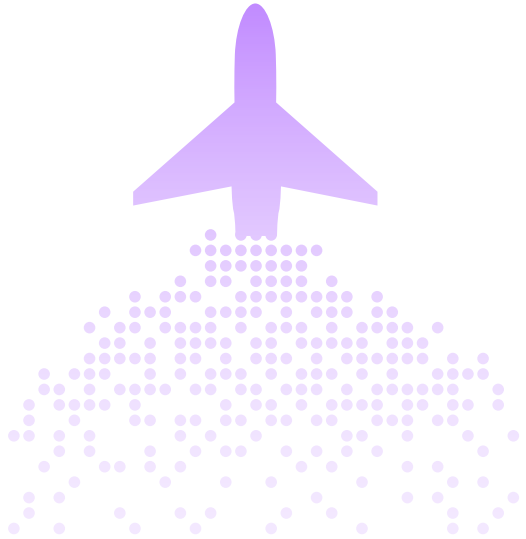


Figure 4: risk factors for commercial aerospace: concern for executives (greater/same/less)

	Next 6 months	Next 12 months	Next 2 years
Global pandemic	Greater	Greater	Same
Terrorism	Less	Less	Less
Political instability	Same	Same	Same
Worsening economic conditions	Greater	Same	Same
Regional armed conflicts	Less	Less	Less
Interest rate changes	Same	Same	Same
Exchange rate changes	Same	Same	Same

The IMF 2022 World Economic Outlook update predicts subdued macro-economic growth through 2022. This is attributed to key factors including tighter financial conditions in the US and Europe due to higher than expected inflation, worse than anticipated slowdown in China, persistent COVID outbreaks, supply chain shocks worldwide, and other negative spillovers from the Russia-Ukraine war.[22]

Business-cycle stance

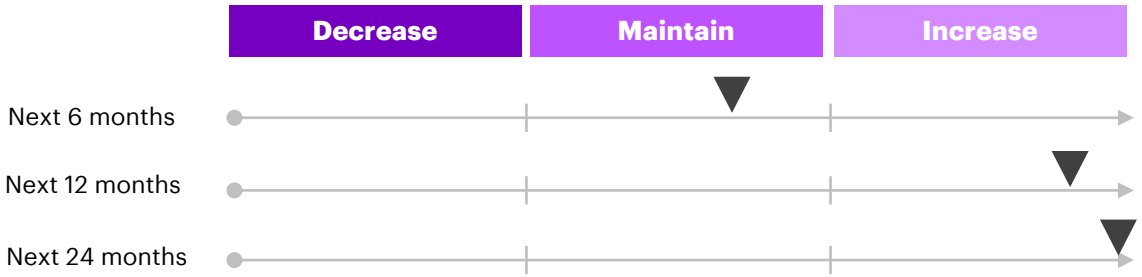
Despite subdued half-year revenue results, OEMs recorded improved operating margins, demonstrating steady recovery of profitability.

For aircraft OEMs, overall outlook for 2022 appears to be pointing toward steady recovery. Boeing has been buoyed by the resumption of 787 deliveries, as well as increased production of 737 airplanes following their safe return to service. For Airbus, its A320 program has ramped up and is progressing toward a production rate of 75 aircraft per month by 2025 (and 65 per month by 2024).[23] This outlook has also been reflected in our survey, with 94% of executives anticipating the deliveries of commercial aerospace products to be higher in 2023, compared with 2022.[24]

Boeing's operating margin for its commercial airplanes business improved to -3.9% in the second quarter of 2022, versus -7.8% in the same period of 2021.[25] Airbus' operating margin improved to 14.4% in the second quarter of 2022, up from 13.5% in the same period of 2021.[26] Overall, August YTD net new orders were highly positive, with Boeing and Airbus reporting 338 and 637 net orders, respectively.[27]

81% of surveyed executives expect their revenues to increase over the next 12 months, while all of them expect revenues to increase over the next 24 months (figure 5).

Figure 5: business-cycle stance (commercial aerospace revenues) outlook

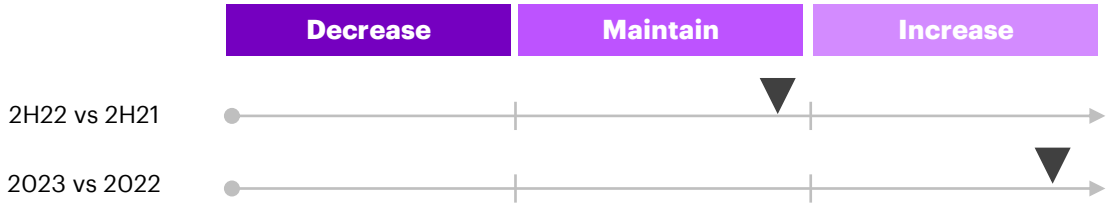


Customer deliveries

In the second half of 2022, 94% of executives expect commercial aerospace product deliveries to remain the same or increase, compared with the same period in 2021 (figure 6).

In 2022, commercial aircraft deliveries for Boeing and Airbus are expected to be 1,176, compared to 951 deliveries in 2021, 723 in 2020, and 1,243 in 2019. Boeing delivered 277 aircraft in the first eight months of 2022, and Airbus delivered 380 aircraft during the same period, with their combined deliveries increasing 11% YoY. The growth in deliveries was entirely by Boeing, which reported a substantial increase of 35% YoY, whereas Airbus' deliveries declined slightly by 1% YoY.[28]

Figure 6: commercial aerospace products delivery outlook



From our survey, 88% and 92% executives expect narrow-body and wide-body deliveries respectively to be at the same or higher levels in the second half of 2022 versus the second half 2021. Outlook for 2023 is even more bullish with executives unanimously predicting higher wide-body deliveries and 94% anticipating higher narrow-body delivery levels (figures 7 and 8).

With air traffic recovery well underway, a number of airlines (including Delta, China Eastern, EasyJet, Qatar Airways, and Air France-KLM) have already signed deals for new aircraft in recent months, with a view to expand and renew their fleets in the coming years. This ordering spree doesn't look to be over either, for example, with United Airlines expected to order 100 wide-body aircraft to replace its aging 767 and 777 fleets with more advanced 787 and A350 aircraft.[29]

Figure 7: narrow-body aircraft delivery outlook (unit deliveries shipped to customers)

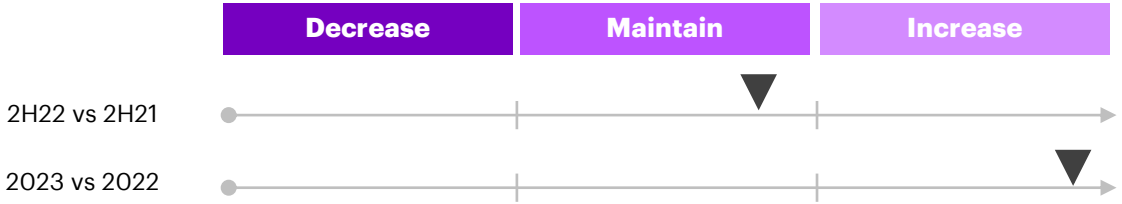
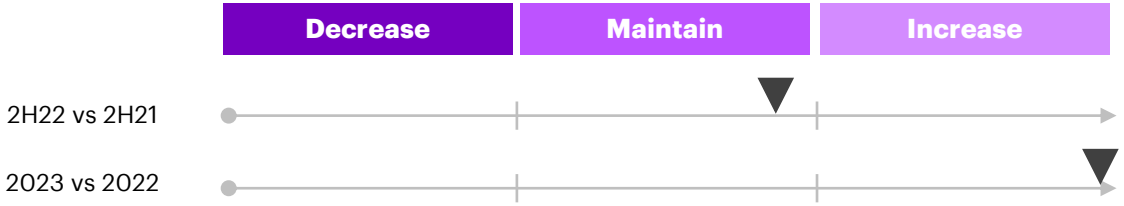


Figure 8: wide-body aircraft delivery outlook (unit deliveries shipped to customers)



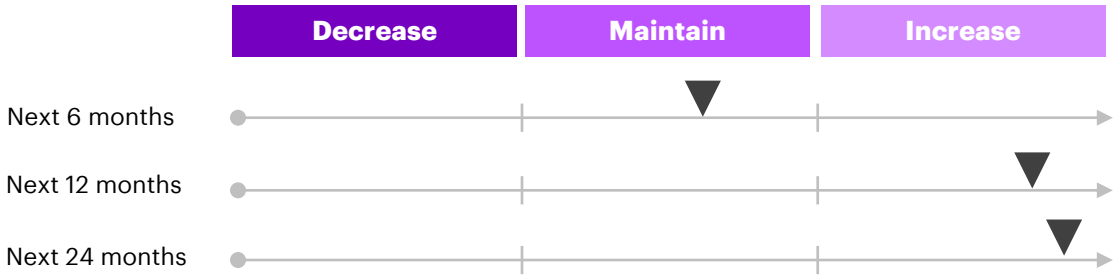
Aftermarket

MRO recovery is expected to stay steady through 2022, attributed primarily to increased commercial volumes.

Over 80% of executives expect MRO spend to remain stable in the next six months. This expectation becomes significantly more positive in the next 12 to 24 months, where 80% anticipate higher MRO spend (figure 9).

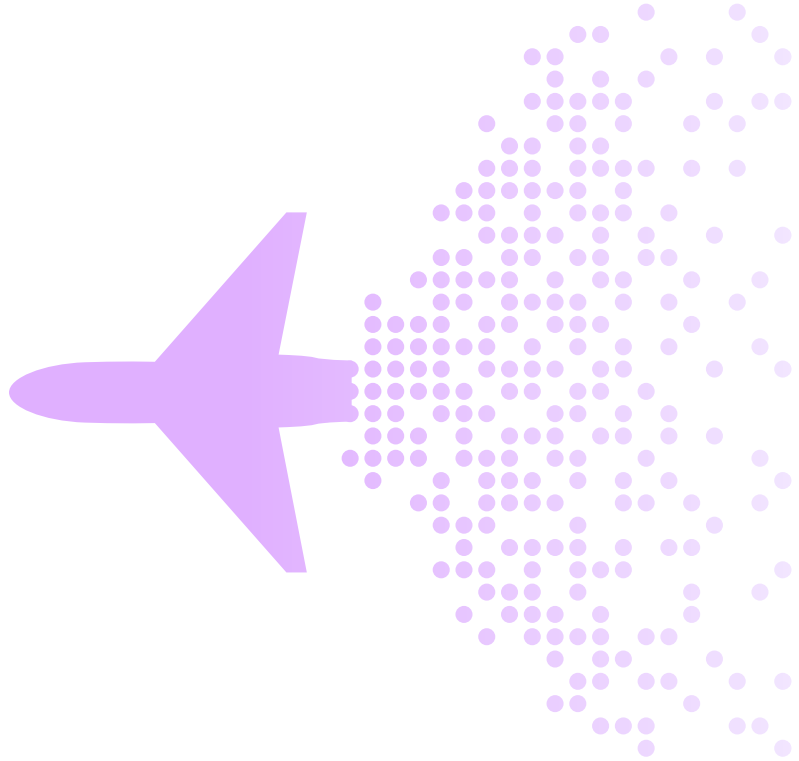
Rising levels of in-service aircraft and higher aircraft utilization are driving MRO activity. The number of parked aircraft (11% of in-service fleet for July 2022) continues to fall as planes are put back into service. Commercial aircraft utilization in narrow-body and turboprop fleets has reached 90% of July 2019 as a benchmark. Wide-body and regional jet fleets are lagging, however, with utilization at 70% to 80%.[30] Even with the ongoing recovery, the global aftermarket is still expected to be down 15% to 25% on pre-pandemic levels.

Figure 9: maintenance, repair and overhaul (MRO) activity outlook



Meanwhile, the MRO digitalization trend is gaining momentum. Implementation of technologies such as automated damage recognition, robotics, predictive maintenance, electronic flight bags, and electronic technical logbooks are becoming increasingly prevalent.[31] The focus is not only on greater utilization of available data, but also on exploring relatively new technologies such as blockchain.[32] MRO providers see that going digital can make their operations more efficient, and can also alleviate skilled labor shortages, which are becoming an increasingly acute issue.

MRO providers are replacing core processes with digital ones. GE Aerospace utilizes robotics and automation to drive efficiency and address labor shortages. 90% of CFM56 airfoil inspections at GE's site in Singapore are now performed using an AI-powered robotic system.[33]



Production Outlook

Second quarter results revealed uneven recovery among aerospace companies, with production outlook pressured by supply chain issues.[34]

Even though OEMs have increased production as air travel recovers, earlier production cuts affected suppliers' cash flows significantly. Regardless of these difficulties, we observe signs that suppliers are becoming more optimistic in their outlook. Despite ongoing supply chain disruptions, Airbus has been aggressive with its recovery plans. It aims to increase production of narrow-body programs to 75 units per month by 2025 but was forced to delay 65-units plans from mid-2023 to early 2024 due to supply chain issues. Boeing, on the other hand, aims to increase production of its 737 model to 38 per month in the first half of 2023 despite problems with engines supply.[35]

These plans have significantly influenced production capacity outlook. In the near-term, production capacity looks to be broadly stable. 64% of executives expect their capacity to remain the same in the next six months, while 33% already predict an increase. Expectations grow even more optimistic when looking at the next 12 to 24 months, when a respective 72% and 97% of executives expect production capacity to increase (figure 10).

Figure 10: production capacity outlook

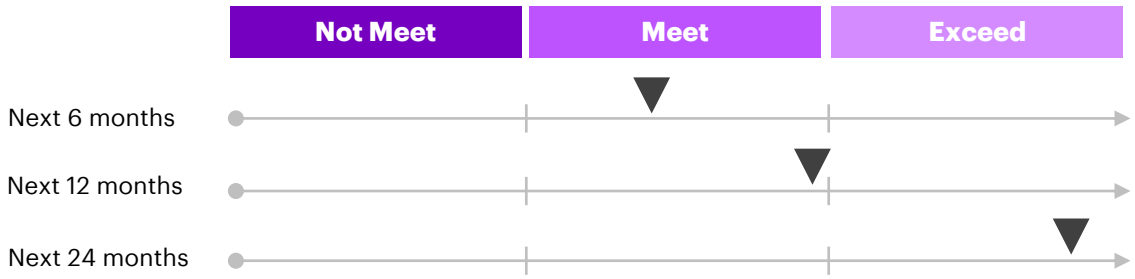
Supplier delivery outlook

While supplier deliveries have improved, supply chain disruptions persist, driven by the Russia-Ukraine war, China's zero-COVID policy, and localized pandemic-induced closures.

Supply chains will ultimately meet OEM expectations as they adjust to changes in demand, which is getting stronger. Nevertheless, OEMs and Tier 1s have difficulties with sourcing various elements, from engine castings to microelectronics, and usually there is more than one root cause of delays.[36] According to Airbus CEO, Guillaume Faury, the supply chain crisis will not be resolved in the coming months, but will last until 2023.[37] A similar opinion is expressed by Boeing CEO, Dave Calhoun, who is vocal that supply chain issues are hindering 737 MAX production and expects such disruption to last well into the next 18 months.[38]

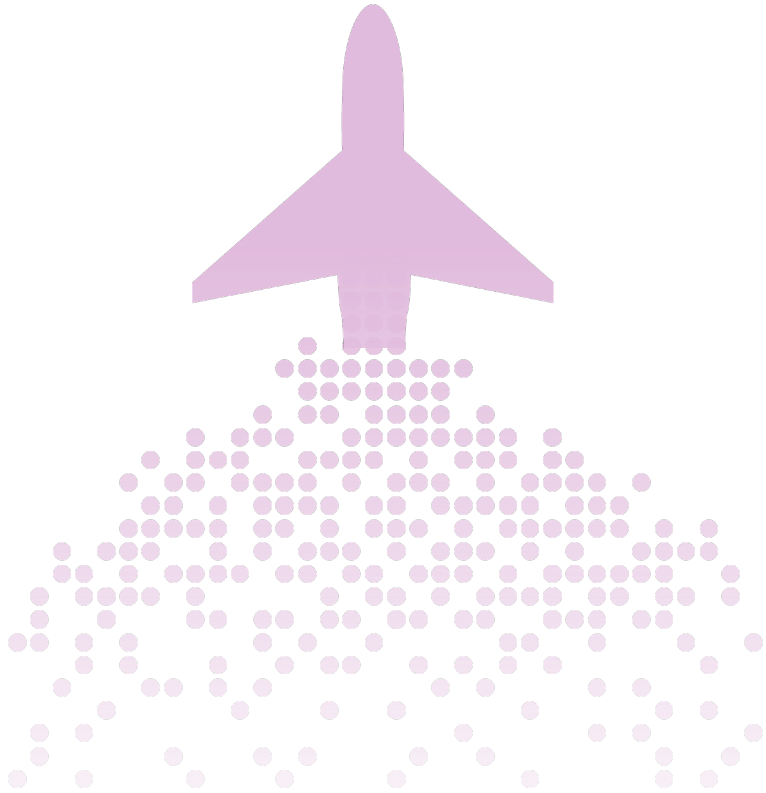
Short-term confidence in supply chains has improved in comparison to prior surveys, only 22% of executives report reduced confidence in their supply chain timeliness and quality over the next six months. Optimism is continuing to rise, but the next few months will be a challenge for all. 88% of executives expressed confidence about suppliers meeting or exceeding delivery expectations next year, with 100% expressing positive sentiment for suppliers to meet or exceed expectations in the 24 month horizon (figure 11).

Figure 11: supplier delivery outlook



Although Tier 1 suppliers are seeing growing demand from OEMs, they experience difficulties in meeting this expectation and are taking actions to reduce problems. For example, Rolls-Royce is focusing on consolidating its supplying companies by making direct acquisitions of best performers.[39]

A similar approach to tackling supply chain issues can be observed in France, where industry consolidation seems to be progressing. For example, precision engineering company Mecachrome has recently completed a takeover of smaller aerospace supplier WeAre Group, creating one of the largest aerospace parts manufacturers in Europe.[40]



Production input cost outlook

Inflation is negatively impacting costs across the board.

Executives are evenly split between anticipating raw material cost increases and a stable cost outlook over the next six months. Longer term, 92% and 86% of executives predict raw material costs to increase over the next 12 and 24-month periods respectively (figure 12).

Aerospace companies are taking measures to deal with raw materials shortages and rising costs. For instance, problems with sourcing titanium following the Russia-Ukraine war have led the industry to search for innovative ways to reduce reliance on this metal. One example is the Metallic Advanced Materials for Aeronautics (MAMA) program led by the IRT Saint-Exupery Research and Technology Institute in Toulouse, which aims to reduce the need for titanium parts on Airbus aircraft by 30%.[41]

Figure 12: raw materials cost outlook

Similar to the raw materials outlook, executives are split evenly between cost increase and stable cost outlook for subsystems and parts over a 6-month period. This position changes drastically in the longer term, as almost 90% of executives predict cost increases over the next one to two years (figure 13).

Figure 13: subsystem or parts cost outlook

60% of executives expect production labor-related costs to be stable in the short term. Similar to other cost areas, almost 90% expect labor-related costs to rise during the next one to two years (figure 14).

Increasing labor costs are being felt in all parts of the market as aerospace companies need to compete over skilled employees with other parts of the economy. Such an imbalance puts huge pressure on wages and all aerospace companies are experiencing an acute workforce shortage. As Kailash Krishnaswamy, Senior Vice President of Aftermarket Services at Spirit AeroSystems points out, "there is a general labor shortage and the only way to get labor back to work is higher rates."[42]

Figure 14: production labor cost outlook

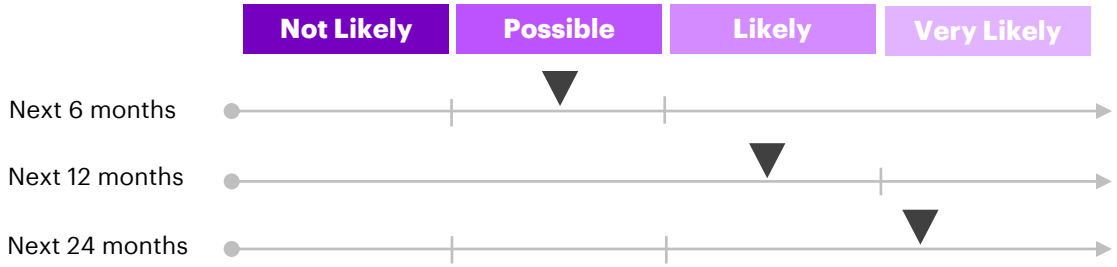
Aerospace talent challenge

89% of executives report that a lack of digital talent negatively impacted their ability to meet customer obligations last year.

As executives work tirelessly to ramp up production rates while mitigating a myriad of challenges such as supply chain delivery misses, there is growing awareness that long-term strategic objectives can no longer be sacrificed. In many cases, this means redesigning how organizations operate. 83% of the executives we surveyed believe it is likely or very likely that they will redesign their company in the next 24 months to better capture market opportunities and drive performance (figure 15).

To build organizations of the future that can deliver on the agility imperative and better position themselves for emerging growth areas, aerospace companies require new ways of organizing, new operating models, and different skills within those structures.

Figure 15: likelihood to undertake a large-scale organizational or operating model redesign to capture emerging opportunities and/or to improve performance

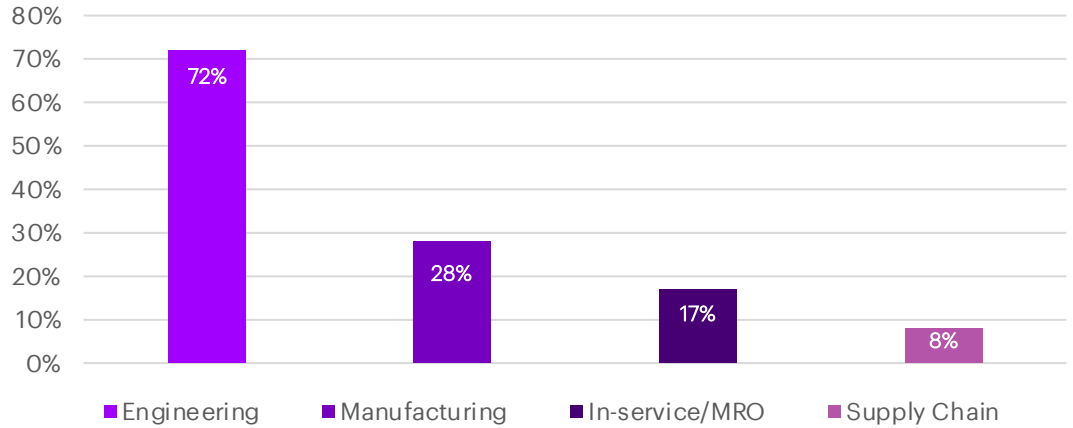


As operating models shift, so too do ways of working and required skills. In particular, pivoting to a more responsive and reliable business necessitates increased digital capabilities and competencies.

Executives are aware that limited access to talent with digital skills negatively impacts their ability to fulfill customer obligations. 89% acknowledged this was an issue in the past year, while 58% anticipate that they will continue to face this obstacle over the next 12 to 36 months.[43]

Executives also confirmed that the depth of digital talent varies dramatically across functions. For example, while 72% of executives are highly confident in their digital engineering talent mix, only 8% report the same for their supply chain management function (figure 16). This gap is reflected in increased focus on developing and procuring digital talent outside of the engineering domain, such as Pratt & Whitney announcing their intent to hire hundreds of new analysts focused on digital supply chain capabilities.[44]

Figure 16 : confidence in the mix of digital talent and skills required to achieve functional objectives across different functions



Aerospace companies seem fully aware that attracting digitally enabled talent is a key pre-requisite to expand in the future, digitally-driven market. For example, Airbus plans to hire 6,000 people focused mainly in the areas of digital transformation, cyber technology and decarbonization. Meanwhile, Boeing plans to create a research and technology hub aimed at focusing R&D and talent development in areas supporting digital innovation.[46]

To build and retain this talent, executives indicated that they are relying on the fundamentals: compensation, learning opportunities and work-life flexibility are their top three areas of focus for talent acquisition and retention.[47]

Regional outlooks

North America: Boosted by 737 MAX deliveries

Boeing delivered 216 aircraft in 1H22, a 38% increase over 2021 – and a promising indication that the North American market is getting back to growth.[48] At the recent Farnborough Air Show, Boeing secured over 200 orders or commitments.[49] Delta Air Lines placed an order for 100 Boeing 737-10s, the largest 737 MAX variant, with options for 30 additional jets. Overall, the 737 production rate increased to 31 airplanes per month during the second quarter.[50]

With 2022 growth anticipated to increase 16% YoY versus last year's low base, commercial aerospace is still 15% lower compared to 2019 and 22% lower compared to 2018 levels (figure 18).

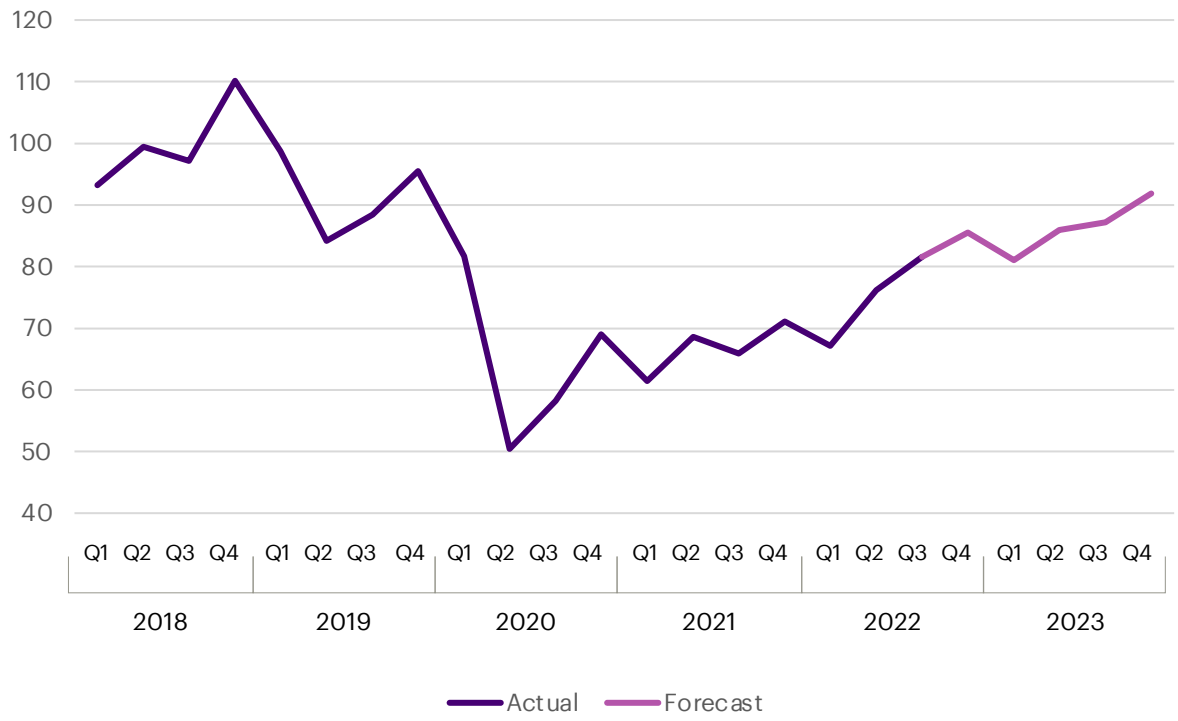
While Boeing anticipates abnormal 787 related costs of around $2B, it finally resumed 787 deliveries after 16 months of suspension, with delivery to American Airlines.[51] 787 production is likely to increase from its current rate of approximately 2 aircraft per month to 5 aircraft over time. However, Boeing's delivery backlog of 120 787s is likely to face scrutiny from the FAA over airworthiness certificates. Boeing also announced a revised outlook for the 777X, with delivery pushed back from 2023 to 2025 due to certification compliance requirements.[52]

Demand is expected to remain strong on the freighter side, driven by growth in e-commerce and logistics; however, supply continues to be an area of concern because of ongoing disruptions.[53]

Figure 17: outlook for North America

2H22 vs. 2H21	2022 vs. 2021	2022 vs. 2019	1H23 vs. 1H22
Rising	Rising	Lower	Rising

Figure 18: North America commercial aerospace index (USD, 2018 = 100)



Europe: Airbus deliveries slow down

At the end of August 2022, Airbus' overall net order book stood at 637 aircraft and 380 deliveries. It means that the company leads comfortably over Boeing for both orders and deliveries. At the same time, Airbus' overall commercial revenues decreased 1.6% YoY in the first half of 2022.[54]

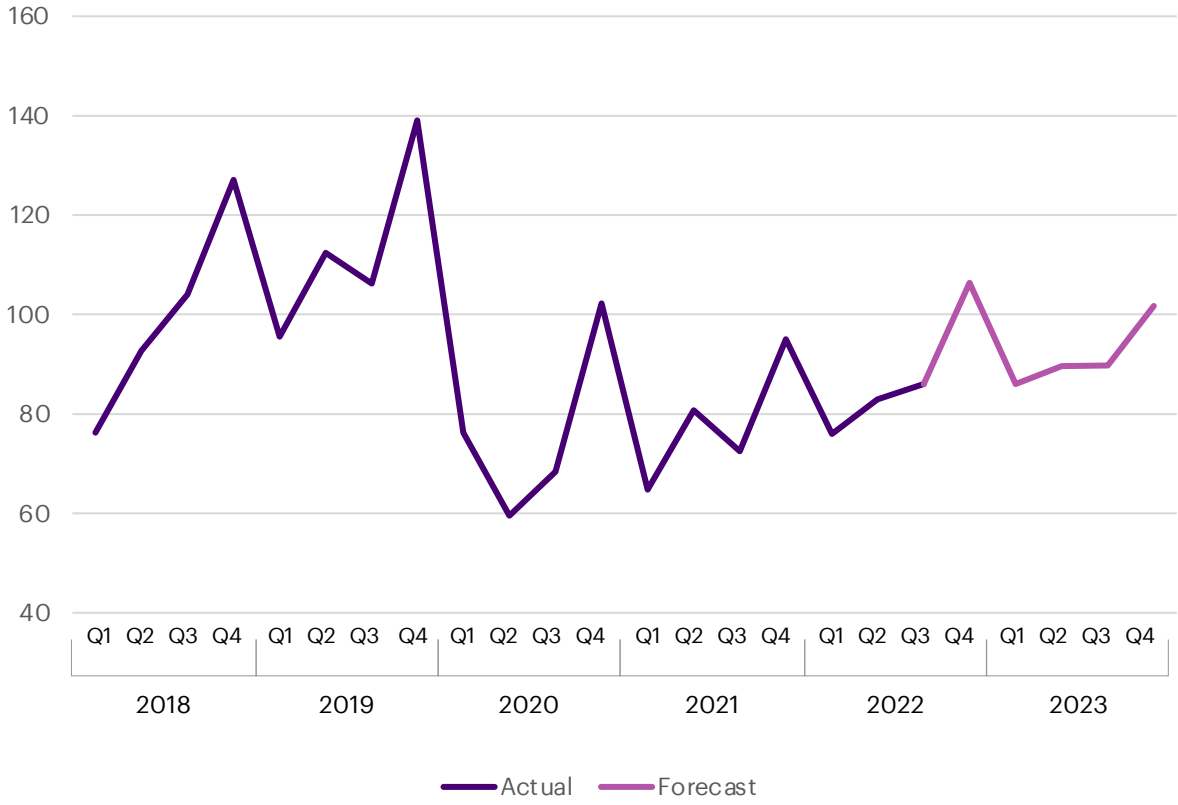
Airbus expects to further boost its A320 production rate, which is anticipated to increase to 75 per month by 2025. The company was forced to downsize production plans to 65 aircraft per month from mid-2023 to early 2024, mainly due to supply chain issues.[55] Although cancellations are still prevalent, they are heavily outpaced by new orders. This trend has been boosted by the recent decision of four Chinese carriers to order 292 A320-family aircraft.[56] It also seems that wide-body production rates and orders are gaining momentum, albeit slowly. Production of A330 and A350 models should increase to three and six aircraft per month respectively in the coming months.[57] Several air carriers in Europe recently ordered wide-body aircraft from both Boeing (Lufthansa) and Airbus (Air France, ITA), while some are in front of this decision (IAG).

With 12% YoY recovery anticipated in 2022, European commercial aerospace revenues will be 23% lower than 2019 (figures 19 and 20). A long period of recovery is still ahead for Europe to reach pre-pandemic levels. Moreover, an economic slowdown might have an adverse impact on European air traffic recovery, which risks cutting demand from airlines for MRO and aircraft orders.

Figure 19: outlook for Europe

2H22 vs. 2H21	2022 vs. 2021	2022 vs. 2019	1H23 vs. 1H22
Rising	Rising	Lower	Rising

Figure 20: Europe commercial aerospace index, (USD, 2018 = 100)



Asia Pacific: advancing beyond 2019 levels

In 2022, commercial aerospace revenue for the Asia Pacific region is expected to increase 4.5% YoY, driving the market level to be 10% bigger than in 2019 (figures 21 and 22).

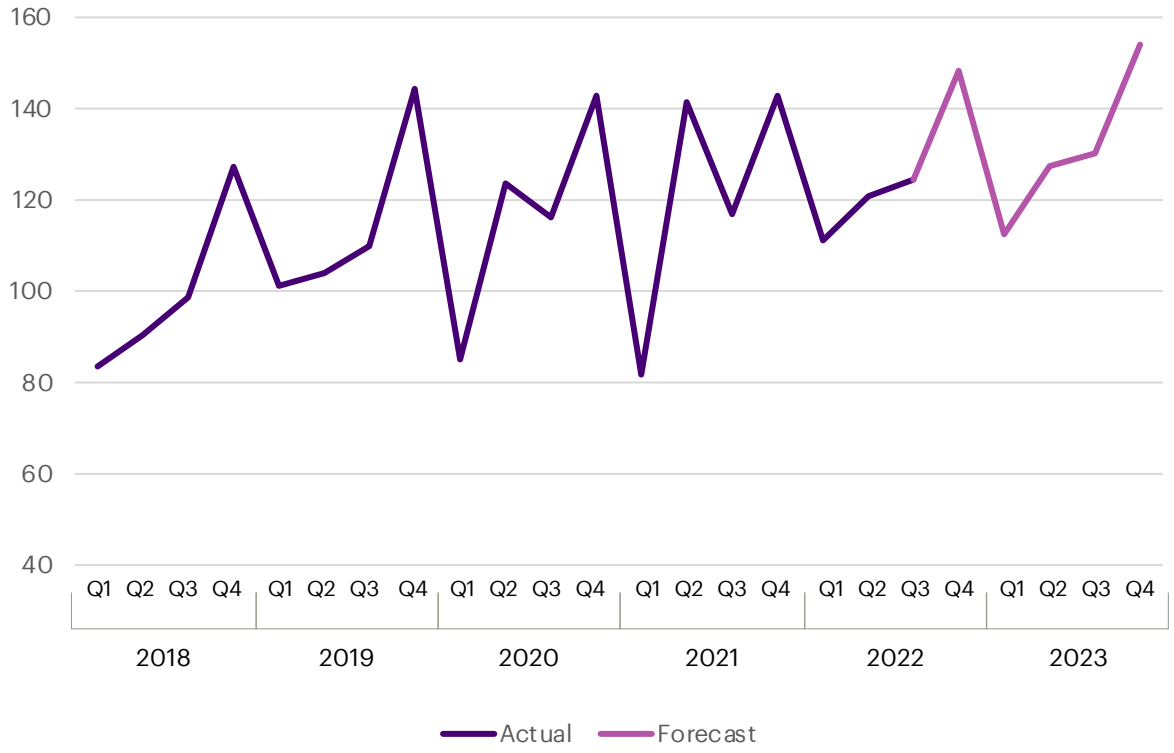
Airbus witnessed record orders in China in 1H22, with four Chinese carriers ordering 292 A320 Neos.[58] COMAC recently completed test flights of six of its C919 models and edges closer to certification.[59] The company is expected to deliver one aircraft to China Eastern this year.[60]

Border openings across Asia Pacific have aided commercial aerospace recovery with strong orders supporting MRO activities and services. Representative of this trend, ST Engineering recorded strong 1H22 growth in Aviation Asset Management (58% YoY) and MRO (15% YoY).[61]

Figure 21: outlook for Asia Pacific

2H22 vs. 2H21	2022 vs. 2021	2022 vs. 2019	1H23 vs. 1H22
Rising	Rising	Higher	Rising

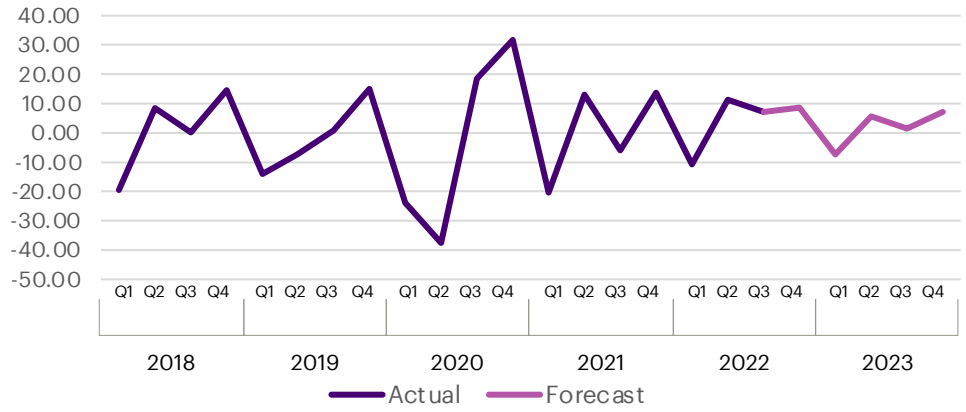
Figure 22: Asia Pacific commercial aerospace index (USD, 2018 = 100)



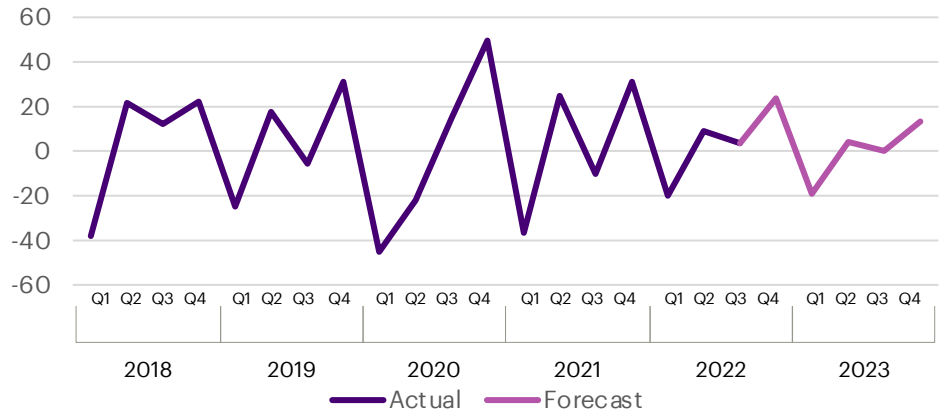
Appendix

Global and regional and commercial aerospace index performance (QoQ percentage change)

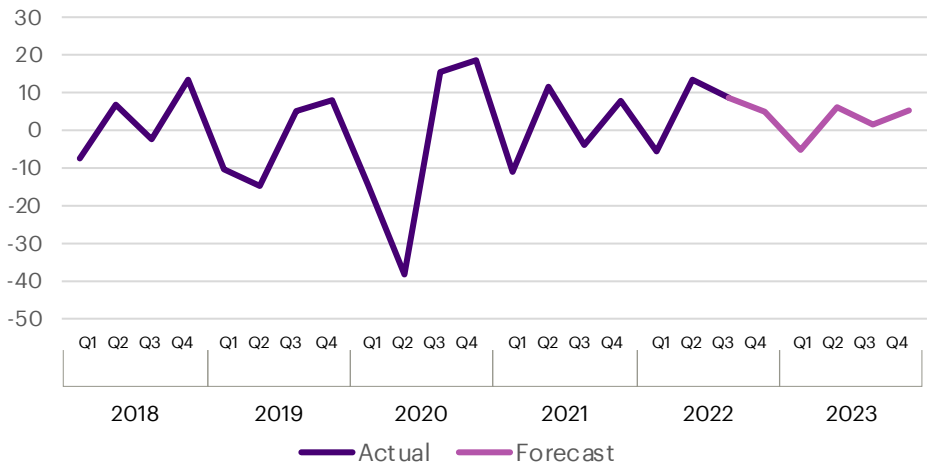
Global



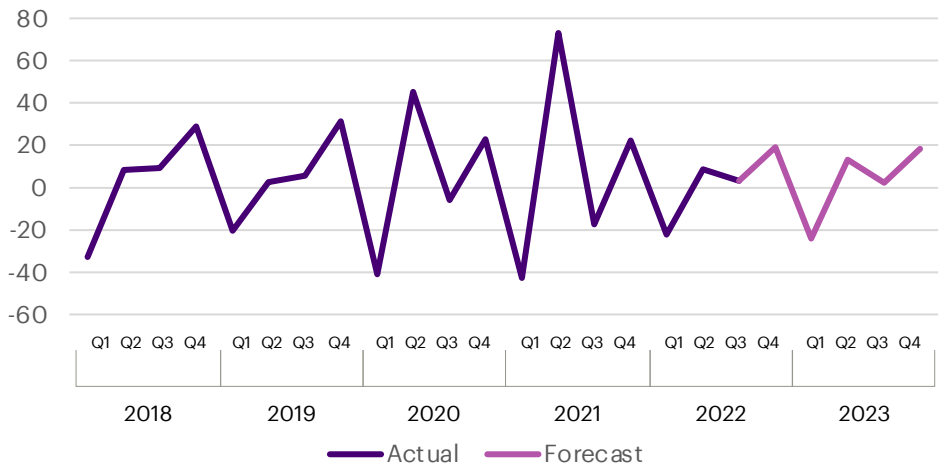
Europe



North America

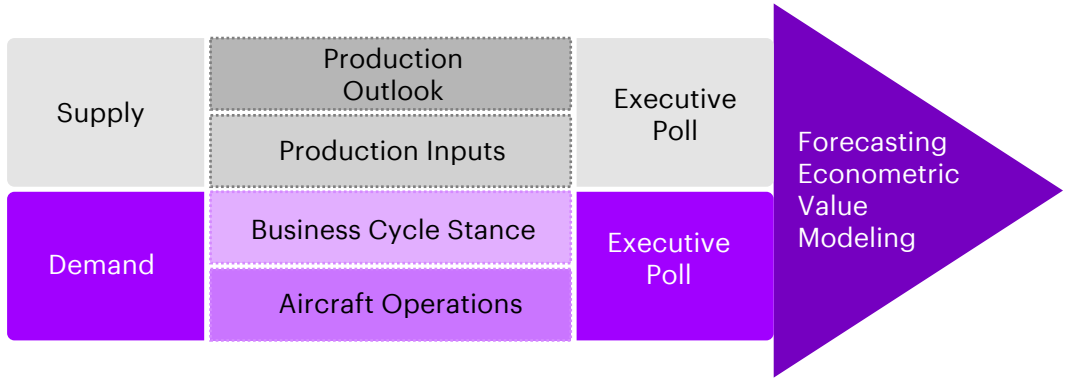


Asia Pacific



About the Accenture Commercial Aerospace Market Insight Report

Combining sophisticated econometric modeling methodologies to drive quantitative quarterly forecasts on the health of the commercial aviation market, with insights from leading aerospace executives worldwide, the Accenture Commercial Aerospace Insight Report provides a unique perspective on short- and medium-term trends and drivers in this market, covering a wide range of activities, from suppliers to MROs.



Regional forecasts are in the highest-impact regional currency, with the global index aggregated in US dollars. The index baseline year is 2018, and both regional and global indices are based on this year.

To complement the econometric modeling, we polled executives at major commercial aerospace companies to gain their insights into future supply and demand outlook. The outlook indicators in this report are based on a combination of Accenture's econometric modeling and a global commercial aerospace executive poll. We conducted our poll in August 2022 and views are subject to considerable change as conditions can rapidly evolve.

Authors

John Schmidt
Aerospace and Defense Global Industry Lead
john.h.schmidt@accenture.com

Julio Juan Prieto
Aerospace and Defense Europe Industry Lead
julio.juan.prieto@accenture.com

Contributors

Amy Bahrani
Senior Manager

Stephen Strange
Managing Director

William Carberry
Senior Manager

Sankar Subramaniam
Associate Manager

Kamil Mazurek
Manager

David Walfisch
Principal Director

Shubham Shukla
Research Senior Analyst

Jeffrey Wheless
Principal Director

Visit us at accenture.com/aero

About Accenture

Accenture is a global professional services company with leading capabilities in digital, cloud and security. Combining unmatched experience and specialized skills across more than 40 industries, we offer Strategy and Consulting, Technology and Operations services and Accenture Song — all powered by the world's largest network of Advanced Technology and Intelligent Operations centers. Our 721,000 people deliver on the promise of technology and human ingenuity every day, serving clients in more than 120 countries. We embrace the power of change to create value and shared success for our clients, people, shareholders, partners, and communities. Visit us at accenture.com.

About Accenture Research

Accenture Research shapes trends and creates data-driven insights about the most pressing issues global organizations face. Combining the power of innovative research techniques with a deep understanding of our clients' industries, our team of 300 researchers and analysts spans 20 countries and publishes hundreds of reports, articles and points of view every year. Our thought-provoking research—supported by proprietary data and partnerships with leading organizations such as MIT and Harvard—guides our innovations and allows us to transform theories and fresh ideas into real-world solutions for our clients. Visit us at www.accenture.com/research.

1. Accenture Commercial Aerospace Insight Survey, August 2022
2. Boeing First Quarter 2022 report, Boeing Second Quarter 2022 report, Airbus H1 results 2022
3. Accenture Commercial Aerospace Insight Survey, August 2022
4. Global Outlook for Air Transport Times of Turbulence, IATA, June 2022
5. Travel Recovery Rebuilding Airline Profitability - Resilient Industry Cuts Losses to $9.7 billion, June 2022
6. Accenture Commercial Aerospace Insight Survey, August 2022
7. Russia–Ukraine Crisis Disrupts European Aerospace Supply Chains, fitchratings.com, May 2022
8. Accenture Commercial Aerospace Insight Survey, August 2022
9. AWIN Market Analysis, Commercial Aviation, Utilization, August 2022
10. Accenture Commercial Aerospace Insight Survey, August 2022
11. Ibid
12. Rolls-Royce Holding Plc Civil Aerospace Investor Day, May 2022
13. Aerospace Market Global Briefing 2022, The Business Research Company (May 2022)
14. Airbus orders and deliveries, Boeing orders and deliveries
15. Accenture analysis
16. Travel Recovery Rebuilding Airline Profitability - Resilient Industry Cuts Losses to $9.7 billion, IATA – June 2022
17. Air Passenger Market Analysis, IATA, June 2022
18. Travel Recovery Rebuilding Airline Profitability - Resilient Industry Cuts Losses to $9.7 billion, IATA
19. Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic Impact Analysis, ICAO
20. Global Outlook for Air Transport Times of Turbulence, IATA, June 2022
21. Airbus orders and deliveries, Boeing orders and deliveries
22. World Economic Outlook Update, July 2022
23. Boeing Investor Presentations – Q2'2022 results, Airbus reports Half-Year (H1) 2022 results Press Release
24. Accenture Commercial Aerospace Insight Survey, August 2022
25. Boeing Investor Presentations – Q2'2022 results
26. Airbus First half-year 2022 Financial Report
27. Airbus orders and deliveries, Boeing orders and deliveries
28. Accenture analysis based on Airbus orders and deliveries, Boeing orders and deliveries
29. United Airlines close to new widebody order, airdatanews, August 2022
30. AWIN Market Analysis, Commercial Aviation, Utilization, August 2022
31. Airlines Push Forward Digitalization Plans, aviationweek, June 2022
32. The Progress of Blockchain in MRO, aviationweek, March 2022
33. GE Aviation Ramps Up Robotics for MRO, aviationweek, June 2022
34. H1 Airbus Results 2022, Boeing Second Quarter 2022 report, Accenture analysis
35. Boeing wants to increase 737 production but has too few engines, flightglobal.com, July 2022
36. Supply Chain Bottlenecks Slowing Aircraft Production, aviationweek, August 2022
37. Airbus chief says supply chain crisis will last until 2023, ft.com, July 2022
38. Boeing CEO says supply chain issues are hindering 737 Max production increase, cnbc.com, July 2022
39. Rolls-Royce Sees Supply Chain Issues Lasting Into 2023, aviationweek, August 2022
40. Aircraft parts makers Mecachrome, WeAre to join forces, janes.com, August 2022
41. Western Industry Strives To Curb Dependence On Russian Titanium, aviationweek, June 2022
42. Soaring costs, weak recovery threaten aircraft maintenance market, dailysabah.com, February 2022
43. Accenture Commercial Aerospace Insight Survey, August 2022
44. Pratt & Whitney announces new capabilities centre in Bengaluru, itln.in, March 2022
45. Airbus seeking new talents to prepare the future, Airbus.com, January 2022
46. Boeing Makes Northern Virginia its Global Headquarters and Research & Technology Hub, clearancejobs.com, May 2022
47. Accenture Commercial Aerospace Insight Survey, August 2022
48. Boeing Reports Second-Quarter Results
49. Second-Quarter 2022 performance review, Boeing Investor Presentation
50. Airbus and Boeing Report July 2022 Commercial Aircraft Orders and Deliveries, Forecast International, August 2022
51. Boeing Reports Second-Quarter Results
52. Airbus and Boeing Report July 2022 Commercial Aircraft Orders and Deliveries, Forecast International, August 2022
53. The Boeing Company Q2 2022 Earnings Call, Alpha street
54. Accenture analysis based on Airbus revenue data for 2H2020, 2021 and 2H2022
55. Airbus Updates 2022 Delivery Estimate and Production Rates, simpleflying.com, July 2022
56. Airbus awarded new orders in China
57. Airbus and Boeing Report, June 2022, Forecasts International
58. Airbus and Boeing Report July 2022 Commercial Aircraft Orders and Deliveries, Forecast International, August 2022
59. China's homegrown passenger jet is about to take off—but experts doubt it can compete with the Boeing 737, Fortune, July 2022
60. COMAC C919 Edges Closer To Certification After Test Aircraft Task Completion, Simple Flying, July 2022
61. ST Engineering, H1'2022 Results