ARSA | OliverWyman

GLOBAL FLEET AND MRO MARKET FORECAST 2024–2034

AUTHORS

Brian Prentice
Anthony DiNota
Nik Dulac
Livia Hayes
Ian Ferguson
Devon Holden
Utkarsh Mishra
Richard Huang

CIVIL AVIATION FLEET AND MAINTENANCE 2024 DATA

Air transport fleet & MRO	
Fleet size	28,398
2024–2034 fleet growth rate	2.5%
MRO market size	$103.9 BN
2024–2034 MRO growth rate	1.8%

Global civil MRO employment	
Firms	4,966
Small/medium enterprises (SME)	80%
Maintenance employees	418,732

US civil MRO employment	
Firms	3,988
Small/medium enterprises (SME)	85%
Maintenance employees	184,881

US economic activity	
Maintenance, repair and overhaul	$41.6 BN
Parts manufacturing/distribution	$23.4 BN
Total economic activity	$64.9 BN

FOREWORD

Oliver Wyman's *Global Fleet and MRO Market Forecast 2024–2034* marks our firm's 24th assessment of the 10-year outlook for the commercial airline transport fleet and the associated maintenance, repair, and overhaul (MRO) market. We are proud to say that this annually produced research, along with our *Airline Economic Analysis*, has become a staple resource of executives working in aerospace manufacturing, airlines, MRO, and aviation investment and private equity.

2024 marks a year when the industry is ready to start growing again after almost four years of challenges and turmoil around the COVID-19 pandemic. This year holds its own set of challenges, from continued labor shortages and supply chain fragility to production constraints, slower economic growth, and climate change. As always, we hope the data and insights in the *Global Fleet and MRO Market Forecast 2024-2034* help you better navigate the perils and seize opportunities moving forward.

And speaking of opportunities, we would like to share the news of our latest acquisition of SeaTec Consulting Inc, a leading provider of consulting, engineering, and digital expertise in aviation, aerospace and defense, and transportation.

SeaTec joins CAVOK, a division of Oliver Wyman focused on aviation services, to further elevate Oliver Wyman's commitment to aviation, aerospace and defense, and transportation. In 2022, Oliver Wyman also acquired Avascent, a top management consulting firm and boutique private equity and M&A adviser for the aerospace and defense sector. Avascent was also combined last year with CAVOK. Please contact us to find out more about our new capabilities.

Meanwhile, Oliver Wyman's Market Intelligence team, partners, and vice presidents are available to assist with any questions about this forecast, as well as with the *Airline Economic Analysis*, which is scheduled to be released in March.

Looking forward to another year of collaborating with you.

Brian Prentice
Partner and study leader
Oliver Wyman

Anthony DiNota
Senior Vice President and General Manager
CAVOK Oliver Wyman

EXECUTIVE SUMMARY

BACK ON A GROWTH TRAJECTORY

The global commercial aircraft fleet will be back to setting records again in 2024, the first year of real growth since the peak set before the onset of the COVID-19 pandemic. But despite rising demand for air travel, a return of profitability, and more new fuel-efficient aircraft, the fleet will experience slower growth than in the years before the pandemic.

Between 2024 and 2034, our latest *Global Fleet and MRO Market Forecast* expects the number of commercial aircraft worldwide to expand at a compound annual growth rate (CAGR) of 2.5%, reaching more than 36,400 aircraft by the start of 2034. That's up 28% from today's fleet of around 28,400 aircraft.

While that's decent growth, it falls far short of the 39,000 aircraft we predicted by 2030 in the last forecast Oliver Wyman published just before the outbreak of COVID. We now do not expect the global fleet to reach that size before 2036, meaning the industry essentially lost six years of growth to COVID.

The new forecast CAGR is also lower than the 2.9% Oliver Wyman forecast last year for 2023 through 2033. This year's CAGR has been tempered by the modest global economic growth that high interest rates courtesy of central bankers worldwide made inevitable.

Meanwhile, the global maintenance, repair, and overhaul (MRO) market will also begin to set records again. 2024's spending is expected to hit $104 billion. In real terms, that's 1% above the peak set at the beginning of 2020 before COVID. By 2034, Oliver Wyman's global forecast expects MRO demand to reach $124 billion, expanding at a 1.8% CAGR over the 10 years versus the 2.9% predicted by our 2023-2033 forecast.

NEW LEADERS

The location of the fleet will be changing over the next 10 years as well. By 2034, China will become the second-largest fleet worldwide — displacing Western Europe which slips to No. 3. Biggest-fleet honors throughout the decade will remain with North America, where the fleet today tallies around 8,200. It will grow to 9,850 by 2034.

China has around 4,100 aircraft and will grow to just over 6,400. That means China's fleet will be 65% as big as North America's in 2034, versus 50% in 2024. Despite the 56% expansion for China, that fleet will not be the fastest growing because of the slower underlying growth of the Chinese economy, which is dealing with an implosion of real estate values and an aging population.

Currently at just over 600 planes, India's fleet leads the forecast in terms of growth, adding aircraft at a rate of almost 13% annually over the first five years and nearly 10% for the 10-year forecast period. By 2034, it will be 2.5 times the size it is today. To give a sense of how fast it is expanding, India has more than 1,800 aircraft on order, more than triple its current size.

The other rapidly expanding fleet is in Eastern Europe — growing at a CAGR of 9.2% in the first five years and 7% over the 10 years. This is despite the inclusion of Russia in the regional numbers — the only major fleet to contract between 2024 and 2034. Russia's fleet will shrink 8% over the forecast period, and because of the trade sanctions imposed after it invaded Ukraine, its narrowbody fleet will decrease by a stunning 44%.

PRESSURE ON PRODUCTION AND MRO

But the industry does face risks, even with this more modest growth. The two global airframe manufacturers — Airbus and Boeing — are pushing their production capacity to the limit to keep up with demand, hoping to reach new heights in monthly output over the next decade. Yet it appears unlikely at this point that either will hit their targets on time without significantly more investment in their own production facilities and those of their chief suppliers.

A new contender may also be entering the global aerospace market. This year China has brought two new aircraft — the C919, a narrowbody, and the ARJ21, a regional jet — to the Singapore Airshow with hopes to start delivering globally sometime in the 2030s. Even though the manufacturer, Commercial Aircraft Corporation of China Ltd. (COMAC), has limited production capacity at this juncture, Chinese airlines have placed orders for 1,000 C919s.

Four C919s are in service so far this year, flying for Chinese airlines. But despite the optimism behind the 1,000-plane order book, we expect COMAC to deliver only about 600 by 2033. COMAC's need to ramp up production means it is unlikely to be a significant factor in the global aerospace market within this forecast period. Neither COMAC models have received approval from either the US Federal Aviation Administration (FAA) or the European Union Aviation Safety Agency (EASA).

MORE INVESTMENT NEEDED

After three years of COVID, inflation, and raw material and labor shortages, the aerospace industry is left with a dearth of skilled labor and a pressing need to modernize and optimize production at all points along the supply chain. The pressure to produce and the retirement of many skilled baby boomers during COVID may also be contributing to some of the quality-control issues plaguing the industry.

The MRO support network that keeps aircraft flying is simultaneously going through similar challenges. There is a critical shortage of aviation maintenance technicians (AMTs) and engineers, which is making it increasingly harder for the industry to keep up with rising demand for air travel. The shortfall in AMTs in North America is 24,000, based on an Oliver Wyman analysis.

But as the fleet and utilization of those aircraft grow more slowly, so too does MRO. Engine maintenance appears to be the exception, with a 10-year CAGR of 2.3% over the forecast period. This is because of a historically unprecedented number of next-generation engines entering the market as airlines seek cost savings from fuel efficiency and a cut in greenhouse gas emissions.

Yet the benefits anticipated from improved reliability and operational costs with new engines are not being fully realized because of operational issues facing the new engines. From CFM International's LEAP to Pratt & Whitney's GTF to Rolls-Royce's Trent XWB, each entrant has experienced delays and problems. For some, these issues have resulted in a raft of on-wing inspections, airworthiness directives, or extra unplanned visits to the shop, necessitating the addition of more engine MRO capacity.

PROLIFERATION OF NEXT-GEN ENGINES

So many new engines are putting enormous strain on both aerospace manufacturing and the aircraft aftermarket. One of the more publicized situations involved Pratt & Whitney's geared turbofan (GTF) platform, which led to the grounding and inspection of Airbus 320 fleets.

While the GTF was already facing durability questions, it was discovered last summer that contaminated powdered metal was used in the manufacture of certain internal engine parts. This meant these parts would need to be replaced sooner than expected. As a result, the FAA and EASA mandated inspections of 1,200 GTF engines, out of 2,500 in use, grounding hundreds of aircraft at a time. In late February, between 250 and 300 aircraft were parked, waiting for engine inspections.

At a time when aerospace manufacturing is being pushed to keep up with rising demand for air travel, the engine quality problems and delays are yet another potential impediment to pushing overall production and aircraft deliveries significantly higher.

FLEET AND MRO FORECAST SUMMARY

Region	Africa	Middle East	Asia Pacific	China	India	Latin America	North America	Eastern Europe	Russia	Western Europe	World
2024 Fleet											
Narrowbody	491	587	2,263	3,422	452	1,131	4,713	416	327	3,462	17,264
Widebody	188	818	1,362	488	65	170	1,440	40	57	1,129	5,757
Regional jet	179	45	215	215	7	246	1,509	86	189	352	3,043
Turboprop	281	22	687	1	86	213	569	82	20	373	2,334
TOTAL	**1,139**	**1,472**	**4,527**	**4,126**	**610**	**1,760**	**8,231**	**624**	**593**	5,316	**28,398**
2034 Fleet											
Narrowbody	625	1,056	2,468	4,847	1,253	1,508	6,186	904	184	3,945	22,976
Widebody	254	1,099	1,659	725	137	218	1,831	95	41	1,343	7,402
Regional jet	231	53	264	645	16	250	1,276	121	322	290	3,468
Turboprop	319	19	762	212	139	158	557	105	1	295	2,567
TOTAL	**1,429**	**2,227**	**5,153**	**6,429**	**1,545**	**2,134**	**9,850**	**1,225**	**548**	**5,873**	**36,413**
Fleet growth rates											
2024–2029	1.9%	6.1%	1.7%	3.9%	12.7%	-0.7%	2.0%	9.2%	-7.9%	0.8%	2.4%
2029–2034	2.7%	2.4%	0.9%	5.2%	6.9%	4.7%	1.6%	4.8%	6.9%	1.2%	2.7%
2024–2034	**2.3%**	**4.2%**	**1.3%**	**4.5%**	**9.7%**	**1.9%**	**1.8%**	**7.0%**	**-0.8%**	**1.0%**	**2.5%**
2024 MRO (US$ in billions)											
Airframe	$0.8	$1.6	$3.8	$3.1	$0.2	$1.2	$5.2	$0.4	$0.3	$3.9	$20.5
Engine	$1.7	$8.5	$10.6	$4.7	$0.7	$2.7	$10.2	$0.7	$0.3	$9.7	$49.8
Component	$0.7	$1.5	$3.3	$2.7	$0.4	$1.1	$5.2	$0.4	$0.4	$4.0	$19.7
Line	$0.3	$0.9	$2.2	$1.8	$0.3	$0.7	$3.5	$0.3	$0.3	$3.6	$13.9
TOTAL	**$3.5**	**$12.5**	**$19.9**	**$12.3**	**$1.6**	**$5.7**	**$24.1**	**$1.8**	**$1.3**	**$21.2**	**$103.9**
2034 MRO (US$ in billions)											
Airframe	$0.8	$1.8	$3.5	$3.3	$0.7	$1.4	$5.7	$0.7	$0.3	$3.6	$21.7
Engine	$2.5	$10.7	$11.4	$5.6	$2.8	$3.3	$14.2	$1.5	$0.8	$9.8	$62.6
Component	$0.9	$1.9	$3.5	$3.4	$0.9	$1.4	$5.7	$0.7	$0.3	$3.8	$22.3
Line	$0.4	$1.3	$2.5	$2.8	$0.6	$0.9	$4.3	$0.6	$0.3	$3.9	$17.5
TOTAL	**$4.6**	**$15.7**	**$20.9**	**$15.1**	**$5.0**	**$7.0**	**$29.9**	**$3.5**	**$1.7**	**$21.1**	**$124.1**
MRO growth rates											
2024–2029	1.6%	2.0%	0.7%	5.4%	11.9%	0.5%	1.9%	8.7%	-2.6%	2.2%	2.4%
2029–2034	3.9%	2.6%	0.2%	-1.4%	12.3%	3.2%	2.5%	5.9%	7.2%	-2.1%	1.2%
2024–2034	**2.7%**	**2.3%**	**0.4%**	**2.0%**	**12.1%**	**1.8%**	**2.2%**	**7.3%**	**2.2%**	**0.0%**	**1.8%**