

- 1 Editorial
- 2 Outlook
- 3 Business Conditions
- 4 Business Aircraft Owner / Operator Sentiment
- 5 Advantage Business & General Aviation!
- 6 Flight Path Into 2024: Will Business Jet Demand Hold Up?
- 9 2024 JETNET iQ Summit
- 10 About JETNET iQ

The Room Where It Happens

At the beginning of 2024, leaders from across the business aviation spectrum are asking questions and seeking insights to help their organizations thrive and win in the year ahead. Investment decisions are being made that will drive performance that will be evident at about this time next year when books are closed. For competitive reasons, many strategic conversations are taking place behind closed doors and at all hours, shielded for a time until later revealed in corporate initiatives, investments and divestitures, results, and new products and services.

“Big bets are being placed on the future of business aviation, with many more to be made in the year ahead.”

Big bets are being placed on the future of business aviation, with many more to be made in the year ahead. Our industry’s leaders are focused on the relevant “So what?” as they ponder the near-assault of data and PowerPoints all trying to make sense of the complex investment environment. Almost 4 years after the COVID dagger cut into organizations’ business models, supply networks, and talent pipelines, the near-term outlook can sometimes seem to be about as clear as Foggy Bottom. Having sometimes been in the room where it happened, I can confidently say that data-rich industry insights have been too often lacking.

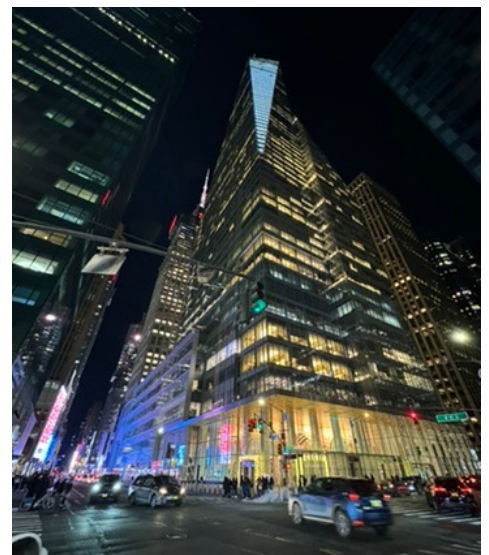
More than 240 years ago, the nascent US of A was just recovering from a lengthy, bloody war of independence from Britain. Landmark decisions were being made that created the basic infrastructure of a new country. Not least amongst those choices was the establishment of a currency and a central bank to manage the young nation’s finances and monetary affairs. Alexander Hamilton, a Founding Father who in 1789 became the first Secretary of the U.S. Treasury, secured Congressional approval of his proposals for a U.S. Dollar and

central bank. Today, it is not an exaggeration to say that the world’s economies rely on these foundations.

The song *The Room Where It Happens* from 2015’s epic biographical musical *Hamilton* by Lin-Manuel Miranda, alludes to a private meeting with Hamilton, Thomas Jefferson, and James Madison. The gathering spawned a compromise situating a new capital in Washington, D.C. (then in the U.S. South) in exchange for support for Hamilton’s plan that ultimately led to the establishment of New York (in the U.S. Northeast) as the fledgling country’s financial center.

Customer insights and independent perspectives are at the core of JETNET iQ. Since 2011, JETNET iQ has been arming leaders with intelligence to make informed decisions. They recognize as we do that business aircraft are time machines for the ages, examples of the best of what we can do when we put our best minds and energies to the task. Secure, private, and hyper-connected, today’s business aircraft are the timeless expression of technology, enabling leaders around the world to be in *The Room Where It Happens*, whether at 51,000 feet or on the way to that next meeting on the 51st floor. ✈

Rollie Vincent
JETNET iQ Creator/Director



Outlook

Despite today's remarkable toolsets and precision monitoring, our experience tells us to be somewhat wary of "year-end data," especially in the month of January. For many datasets, we find that final numbers can be notoriously difficult to pin down, especially for an assessment like this one written in the first month of the New Year. Naturally, having the best insights into where we just ended the year is important to know when making projections of the year to come.

Before launching too far into the numbers, however, let's start with a caveat: With geo-political risk now brightly on the radar, business aviation leaders should enter 2024 on high-watch. We face unknown levels of risk from multiple fronts, each of which could be a seed of unprecedented international tension. Today's Russo-Ukrainian War began in February 2014 with Russia's annexation of Crimea. The full-scale invasion of Ukraine that followed in February 2022 was the latest sad chapter in an on-going saga. Since October 2023, Israel and Hamas have been at war, with much of the hostilities centered on the 141-square mile Gaza Strip, a largely blockaded and isolated Palestinian territory that was home to ~2 million people prior to the hostilities. Houthi-led attacks on shipping in the vicinity of Yemen have already disrupted seaborne commerce through the Suez Canal, further disrupting global supply lines. Sabre-rattling and aggressive posturing by China, a rising military power looming particularly large over the South China Sea and 97 nm-wide Taiwan Strait, has accelerated in 2024 at the same time as a reported 70+ elections are scheduled to be held in countries home to more than half the global population. The Korean Peninsula continues to boil in a 1950's-era war that was never resolved. A looming U.S. presidential election in November 2024 could

have profound implications for global policy, military and commercial alliances, and investment decisions that are keeping the best scenario planners up at all times of the night. While it is still somewhat early to say with precision how the business aviation industry performed in 2023, we believe at this point that the year ended with ~750 new business jet deliveries worldwide, up ~7% from GAMA's 2022 year-end shipment totals. Alternatively, pre-owned bizjet retail sales in units were down by ~22% YoY based on the latest JETNET transaction records. Inventories for sale in JETNET rose to almost 7% of the jet fleet and 4% of the turboprop fleet worldwide at year-end 2023, with a noticeable softening in prices and valuations from their recent post-pandemic peaks. For the year 2024, we are now expecting ~785-800 new jet deliveries, with much depending upon the precise timing of new aircraft certification and entry-into-service dates.

We will be amongst the first to acknowledge that some industry data are more quickly and accurately captured than others. Electronic signals emanating from aircraft and engine health-monitoring systems are mostly available to airframe and engine OEMs, while Automatic Dependent Surveillance-Broadcast equipment constantly broadcast aircraft positions. ADS-B Out technology is transforming the way we monitor and analyze vast amounts of flight operations data. ADS-B insights can provide fascinating – and early – indications of changes in flight operations patterns vital to strategic decision-making. In this issue of JETNET iQ PULSE, we are pleased to welcome Richard Koe, WINGX Managing Director, to share some of his latest thinking on recent flight activity trends and his forecast for 2024 (see article beginning on Page 6). ✈



Business Conditions

GDP

The Economist's **GDP growth estimates** (Jan. 18, 2024) for 2023 are: U.S. +2.4%, Euro Area +0.6%, U.K. +0.2%, Mexico +3.4%, Brazil +3.0%, Canada +1.0%, China +5.5%, Australia +1.9%, and Russia 2.8%



Business jet cycles (take-offs and landings) for 2023 were down by 7.3% YOY for U.S. Part 91, up by 9.2% YOY for U.S. Part 91K, down by 2.6% YOY for U.S. Part 135, and down by 10.7% for European operations



Dow Jones Index (U.S.) was up 13%, **FTSE 100** (U.K.) was down 4%, **CAC 40** (France) was up 5%, and **DAX 30** (Germany) was up 10% YOY on Jan. 23, 2024



U.S. Index of Consumer Sentiment was 78.8 in Jan. 2024 vs. 69.7 in Dec. 2023 and 64.9 in Jan. 2023 YOY; **Euro Area Economic Sentiment Indicator** was 96.4 in Dec. 2023 vs. 94.0 in Nov. 2023 and 95.7 in Dec. 2022 YOY



U.S. unemployment rate (seasonally adjusted) was 3.7% in Dec. 2023 representing 6.3 million unemployed people, up 216,000 from Nov. 2023 (3.7%)



U.S. Purchasing Manager Index (Manufacturing PMI) was 47.4 in Dec. 2023 vs. 46.7 in Nov. 2023 and 48.45 in Dec. 2022 YOY; **Euro Area Business Climate Indicator** was -0.45 in Dec. 2023 vs. -0.39 in Nov. 2023 and 0.57 in Dec. 2022 YOY



Transactions of pre-owned business aircraft in the first 11 months of 2023 were 2,055 jets and 1,075 turboprops, down 25% and 27% respectively YOY (JETNET as of Jan. 1, 2024; whole retail transactions only)



Business aircraft deliveries in 2023 were 653 jets (including Cirrus and Boeing / Airbus single-aisle) and 348 turboprops (Source: JETNET – early and preliminary as of Jan. 23, 2024)

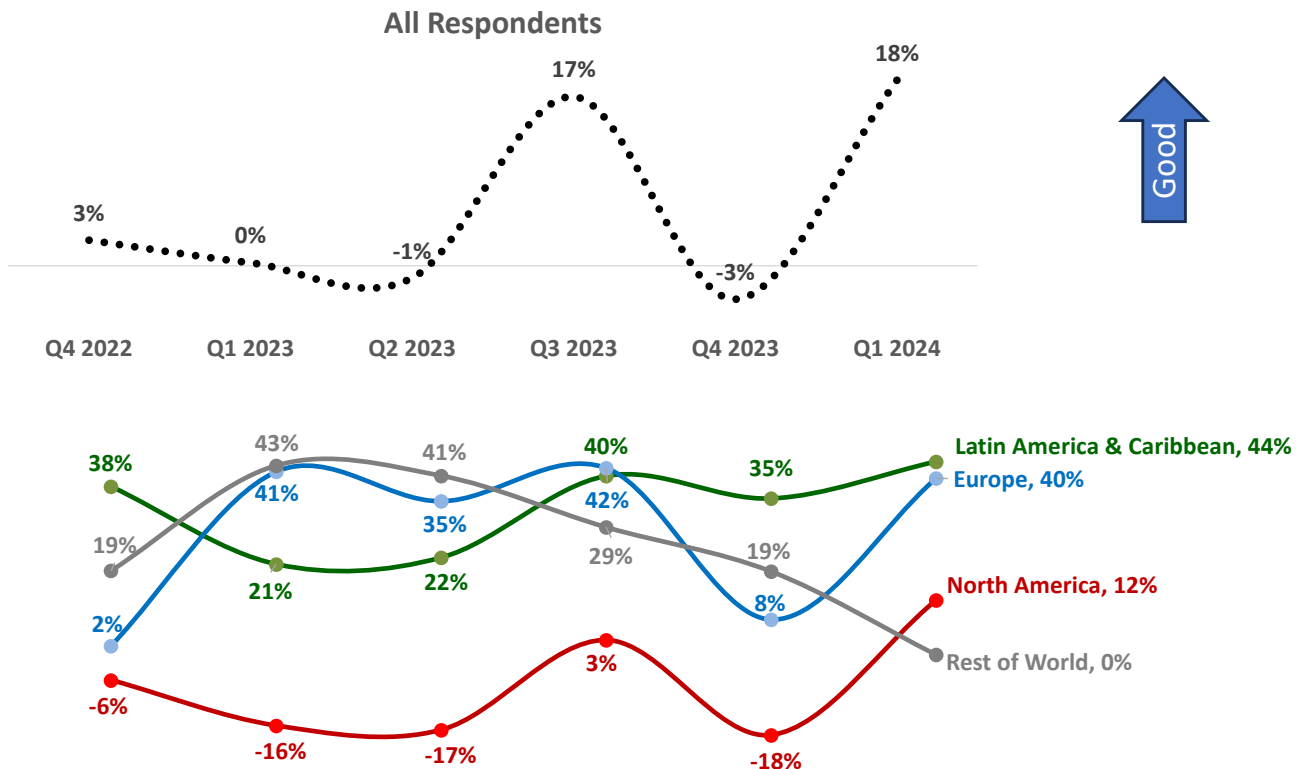
Business Aircraft Owner / Operator Sentiment

Optimism amongst business aircraft owners and operators has fluctuated off of a recent floor and is trending upwards in Q1 2024 based on our on-going tracker of customer sentiment. While the Q1 2024 Survey is currently in progress, early results suggest that there is a noticeable improvement in sentiment scores in the all-important North America (U.S. and Canada) market, where more than 60% of the fleet is based. The U.S. economy has been expanding more than most economists' expectations, registering real GDP growth of 2.5% in 2023 based on the U.S. Bureau of Economic Analysis' Advance Estimate (released on January 25, 2024). This is reversing a subdued sentiment that our JETNET iQ Surveys have registered since mid-2022.

Regional sentiment remains relatively strong in Latin America & Caribbean, led by owners and operators in Mexico and Brazil, where economic growth has been trending above 3% YoY. Customers in Europe are also relatively optimistic, a result that is perhaps less expected given sluggish economic conditions across most of the Continent, and a mild recession underway in Germany.

JETNET iQ Market Sentiment - Globally (All Respondents) and By Region

Q4 2022–Q1 2024: Scale = +100% to -100%



Source: JETNET iQ; Note: Q1 2024 JETNET iQ Survey is in progress (140 responses to date); "Region" refers to aircraft base of operations

Advantage Business & General Aviation!

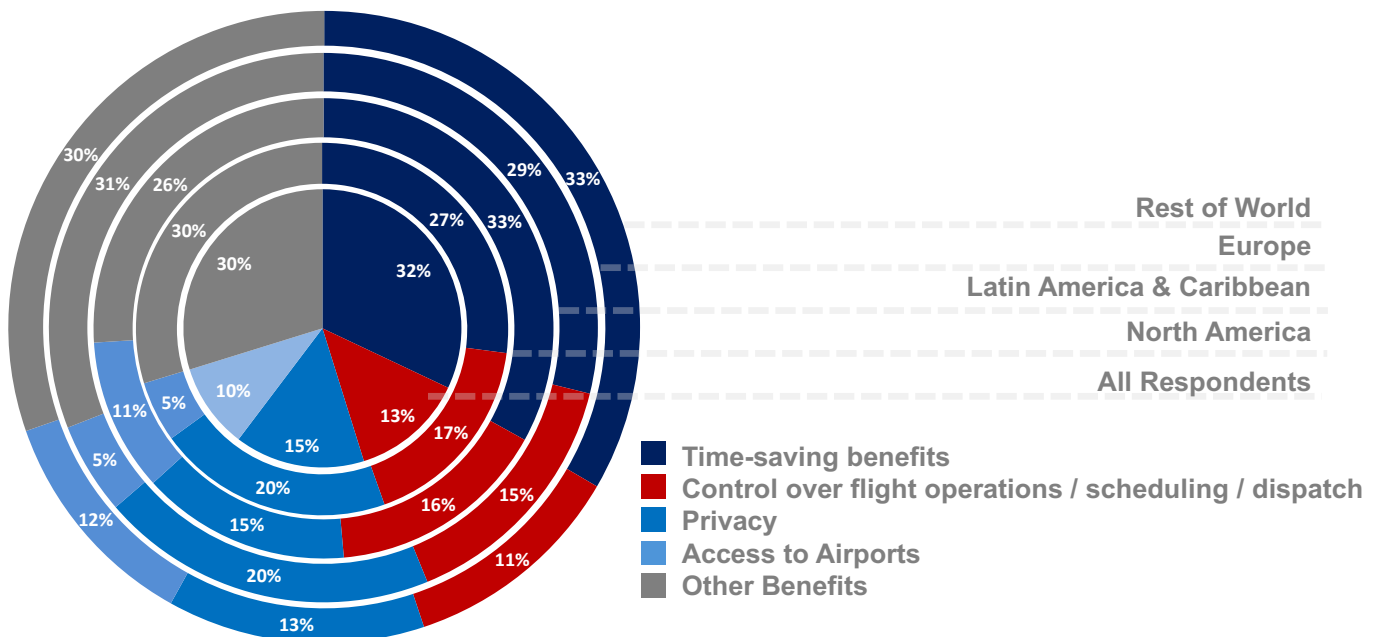
Business and general aviation (B&GA) owners and operators are amongst a relatively small but extremely influential and entrepreneurial community. In our Q4 2023 JETNET iQ Survey, we asked a representative sample of them to share with us their views on the key advantages they derive from having access to their own aircraft.

Perhaps not surprisingly, about 1/3rd of respondents indicate that time-savings ranks highest amongst a long list of B&GA

benefits, regardless of where they are based throughout the world. While time-savings is universally paramount, privacy and control over flight operations – including aircraft and crew scheduling and dispatch decisions – are also of critical importance. B&GA aircraft owners and operators also value access to airports that are more conveniently situated and organized for fast, efficient point-to-point travel. ✈️



**Advantages of General & Business Aviation
(Weighted Average Importance)**



Source: JETNET iQ Q4 2023 Survey (n=479)

Flight Path Into 2024: Will Business Jet Demand Hold Up?



Richard Koe
Managing Director, WINGX

Forecasting demand for business jet flying hasn't exactly been straightforward the last few years. It wasn't always the case. Back in the teens, the anaemic year-to-year growth in flight activity was predictably paired to the stagnant market dynamics of an oversupplied fleet. Purchasers and users took a decade to nurse the hangover from the Global Financial Crisis. With green shoots from 2017, it was relatively clear we were in a cyclical upswing into the early 20s. But projecting more of that trend in January 2020, which appeared to make sense at the time, was then capsized by the black swan of covid. In April 2020 the future of business jet demand was firmly in a black box.

Retrospectively, it seems logical that an untapped market of potential business jet users would start flying private once the lockdown lifted, with health issues paramount and convenience trumping cost as the airlines grounded their fleets.

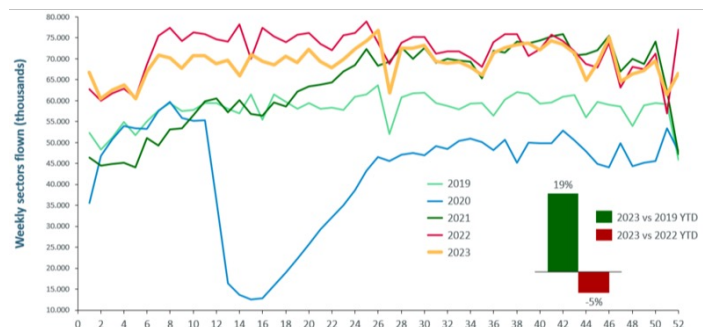


But at the time, the pace of the upswing in business jet activity confounded many. Suppliers were caught on the hop. As demand overwhelmed supply, prices surged. The market was bound to restabilize but it wasn't clear when that would happen. Few could have forecast the Ukraine war in early 2022, which took the wind out of the European bizav market.

From March 2022, business jet activity peaking 30% higher than previous records, demand started to subside. Geopolitical crisis in Europe removed the significant Russian charter market. The supply chain repercussions of the invasion were global, led to runaway inflation and forced central banks to ratchet up interest rates. From mid-2022 economic recession loomed across the major bizav markets in the US and Europe. Other positive industry indicators like preowned transactions bounced off historic peaks and started to fade by the end of the year. Demand for new aircraft showed up in swelling order books but production lines slowed as global supply chains distorted.

Twelve months ago, forecasting 2023 looked like a surer bet. Bizjet demand was bound to deflate further as the economy wobbled and inflation bit. The regional banking crisis back in March 2023 was a prime example, showcasing the impact of the interest hikes. A moderate slowdown in flight demand threatened to become an industry relapse, but by the summer, demand in the US had stabilised just a couple of points below 2022. A steady overall trend in flights, close to 20% above 2019 levels, belied some significant geographical variances. Florida maintained its status as the post-Covid hub for bizjet travellers, whereas California ebbed as its economic fortunes deteriorated.

Global business jet activity in 2023 compared to previous years

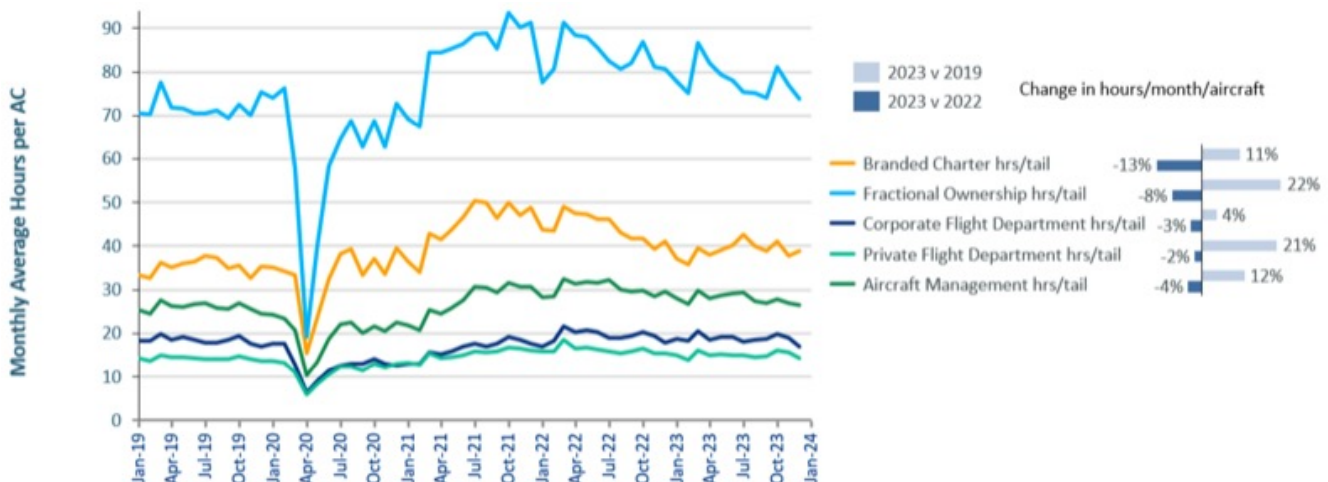


Flight Path Into 2024 (cont.)

The weak spot in utilisation last year was charter, especially in the entry-level space opened up by the surge of newcomers during Covid. Wheels Up felt the pain, with its overextended service coverage seeing yawning losses in its financial results by the second half of 2023. This softness in the market was also reflected in smaller aircraft flying less. The heights of the charter boom in 2022 had dragged older fleets back into high frequency service. By mid-2023, these platforms were seeing activity levels fall back to 2019 levels. Wheels Up was rescued by Delta Air Lines back in September. Another significant operator of small jets, Jet It, closed its doors altogether in May.

The environment for business operators has been tougher in Europe. The EU's economies were stagnant before the Ukraine war, already engulfed in inflation and debt from the lockdown. The Ukraine war fueled inflation and exposed the Union's energy insecurity, especially in Germany. Ironically the energy crisis has coincided with a post-Covid surge in climate activism around fossil fuel production. The use of business jets has fallen into the spotlight as exhibit A for extravagant pollution. Right across the continent, 2023 saw a surge in incidents of disruption and sabotage at business aviation events, conferences, and expos. It's difficult not to see a connection to the dwindling rates of corporate flight activity in Europe, now well below 2019 levels.

Business jet utilisation by operator type (2019-2023)



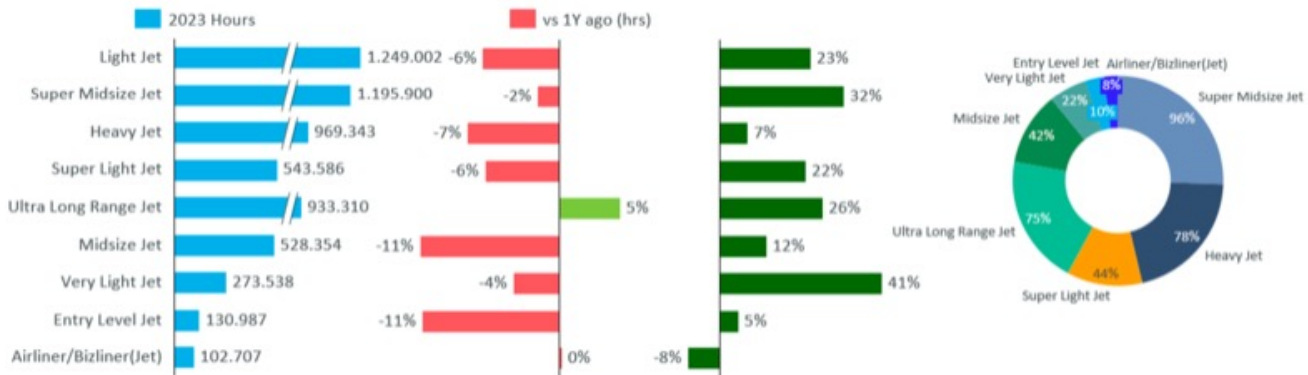
Source: WINGX, ATC, ADSB; business jets only; Change in annual hours/month/aircraft based on fiscal years

The charter slowdown was not restricted to the lightest end of the market. Global charter program provider Vista jet had grown rapidly during the pandemic, needing multiple acquisitions of competing operators to meet rampant demand for large long-range aircraft. But when the market wobbled in early 2023 questions were asked around the sustainability of high operating costs and softening overall demand. As it turned out, Vista's fleet mix was well suited to the variable demand for different business jet segments in 2023; light and heavy jets are flying much less than before, but super midsize and ultra long-range jets continued to see strong demand compared to 2019.

Corporate flight department activity has also waned in the US. The inertia of digital working stalled the recovery of business travel in the pandemic's aftermath, but in terms of new aircraft orders, corporate interest has been very strong according to the broker community. More likely, corporate users have been switching out of dedicated flight departments into fractional and managed programs. This partly explains the growth of leading aircraft management companies and fractional operators. In particular, 2023 was a stellar year for the fractional business, seeing new heights in flight activity and taking record-breaking options on new aircraft.

Flight Path Into 2024 (cont.)

Business jet demand by segment (2023 vs previous years)



The sustained demand for larger long-range aircraft has underlined the growing importance of geographic markets outside the US and Europe. The Middle East, and the Gulf States in particular, have seen a dramatic increase in business aviation since 2019. As in the US, demand was galvanized by Covid, but also has growing momentum from the broader government-backed investment programs in the region, not least in Saudi Arabia. The World Cup in Qatar in 2022 was a pinnacle, but also just one of a multitude of investments in sports and entertainment by Gulf States eager to cash in on global tourism. Geopolitically the region was heading in the right direction, until October 2023.

Geopolitics has traditionally been an outlier for business aviation demand, setting the bounds of growth within each industry cycle. In recent years, geopolitical considerations are no longer peripheral considerations. Whether the users of business aviation work in energy, tech or finance markets, the geopolitical situation is now setting the agenda. Seemingly dispersed crises in Ukraine, Israel and Taiwan have joined up to spell out a narrative of the West under siege. The unipolar world in which business aviation incubated is now breaking up. The globalisation of trade and commerce, a locomotive for business travel since the 1990s, is coming off the tracks. It's difficult not to see this as a headwind for the industry in the years ahead.

The flipside to the argument is that the risk and uncertainty of a geopolitically turbulent world may encourage people to use business aviation when they travel. Scheduled airlines may have largely recovered their capacity from pre-Covid, but airline service quality has been riven by strikes, staff shortages and logistics issues.

On a broader canvas, the multipolar world emerging from the West's globalization is galvanising new trading relationships. Globally-capable business jet operators and suppliers are benefitting from the growth of strategic hubs such as the Middle East, and more broadly the closer collaboration of countries across the global south.

Coming back to the numbers, we expect to see a modest increase in flight activity this year compared to 2023. This would reverse the decline we saw last year and would move the market back towards the record activity in 2022. Some growth in utilisation would endorse the tenor of customer surveys, including JETNET's own IQ. Resilient demand for business jets would also reflect a slightly improved though still-fragile economic climate. Business jet activity will benefit from growth in aircraft deliveries, particularly the large jets flying longer sectors, notably the G700 and Falcon 6X. The bias of deliveries towards fractional operations will also bolster growth.

Positive momentum will nonetheless be tempered by the prevailing headwinds – weakening consumption demand, especially in Europe, the distraction of elections, notably in the US, the ever-growing challenge of the sector's poor environmental profile, the ongoing kinks in global supply chains – these will limit any growth to a few percentage points. There may be upside risks, with inflation coming swiftly under control or - perish the thought - a smooth presidential transition. The downside risk list is much longer. Geopolitical risk, and specifically the outbreak or escalation of regional conflicts, is worryingly near the top of that list. Fingers crossed for a smooth climb. ✈️

2024 JETNET iQ Summit: NYC - September 24-25

Since 2011, JETNET iQ Summits have been at the pinnacle of business aviation industry events. On September 24-25, 2024, plan to join us as we return to Manhattan for one-and-a-half-days of fresh insights, perspectives, and networking with some of the top thought leaders and practitioners in the industry. Speakers and attendees represent a broad spectrum

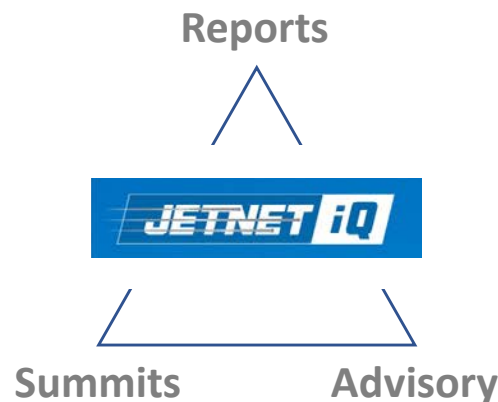
of the business aviation community – from aircraft and engine manufacturers to aerospace suppliers, investors, analysts, lenders / lessors, transaction specialists, trade associations, fleet and corporate operators, aircraft management, MRO, FBO, and many other organizations. SAVE THE DATE! ✈️



About JETNET iQ

JETNET iQ is a business aviation industry intelligence service. research, analysis and forecasting service consisting of three main elements:

- **JETNET iQ Reports** are the definitive analytical reference for business aviation, incorporating quarterly state-of-the-industry analyses, aircraft owner / operator surveys, and detailed aircraft delivery and fleet forecasts
- **JETNET iQ Summits** are annual industry thought-leadership conferences providing unique data, insights and networking opportunities
- **JETNET iQ Advisory** provides customized research and analysis for clients on a project-by-project basis.



JETNET iQ is a partnership between JETNET LLC of Utica, New York and Rolland Vincent Associates, LLC, of Plano, Texas. JETNET iQ Reports are available in various formats on a subscription basis.

JETNET iQ's proprietary quarterly surveys of the worldwide community of business aircraft owners and operators gauge customer sentiment, brand perceptions, aircraft purchase, selling, and utilization expectations, and areas of topical interest in this fast-changing marketplace. JETNET iQ Surveys are password-protected and by invitation-only. Respondents include both aviation professionals and senior management, and closely reflect the worldwide distribution of the business jet and turboprop community. Since Q1 2011, more than 25,000 respondents from more than 140 countries and territories have participated in JETNET iQ Global Business Aviation Surveys, generating the largest commercially available database of its kind in the world.

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