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Beginning to See the Light

In 1945, as the unprecedented hostilities and tragedies of World War II were winding down, songstress Ella Fitzgerald recorded what would become a pop-and-jazz classic called “I’m Beginning to See the Light.” Although the song’s messages were more romantic than altruistic, the overall message of illumination - the light at the end of the tunnel, the dawning of a new day, a fresh discovery – is one that resonates especially now. We are thoroughly conditioned from an early age to look forward to tomorrow, and better days ahead of us.

COVID-19 remains at the top of global concerns more than 6 months after the WHO pandemic declaration that instantly darkened the skies all around us, and the fortunes of the civil aviation industry. While business aviation is faring objectively better than many other sectors of our economy, this remains a tough operating environment, with a continuation of limited forward visibility.

“...business aviation is faring objectively better than many other sectors of our economy...”

Seven-day average COVID-19 cases are once again increasing in many key business aviation markets - most notably across Europe, Russia, parts of the Middle East, India, and up and down the middle of the United States and parts of Canada. We believe that the combination of no vaccine, a general coronavirus fatigue that has us relaxing our guard, and a return from northern summer vacations to homes, campuses, and playing fields are all conspiring to keep skies maddeningly dark and convective.

Some market segments are performing better than others. The Year 2020 started

out on decent footing, with business aircraft customer sentiment stabilizing after falling steadily throughout 2019, a year when OEMs collectively performed better than they had since 2007. Last year, while we had already factored in a cyclical downturn into our delivery and fleet forecasts beginning in 2021, who could have predicted the onset and timing of the pandemic? As we take the field for what will likely be one of the most memorable and unpredictable 4th Quarters in most people’s memories, can we now begin to see the light ahead of us?

Evidence cited in a recent market report by JETNET points to relative strength in some market segments – for example, pre-owned business aircraft transactions and on-demand charter flying – especially in comparison with the commercial airline sector. In June/July 2020, pre-owned turboprop retail sales and leases were off only 9% YOY, while small jets (including very light and light jet models) were actually up by an impressive 34%. While August transactions data are still being finalized, for those hoping to begin seeing the light, you have found some.

In this issue of JETNET iQ PULSE, we feature Janine Iannarelli, President of Par Avion Ltd. A regular panelist at our annual JETNET iQ Summits, Janine is an acknowledged expert in the pre-owned business aircraft market, with a track record of success that knows no boundaries, national or otherwise. Her message on the relative strength of the light jet and turboprop segments in the COVID-19 environment makes for interesting and thought-provoking reading.



Rollie Vincent
JETNET iQ Creator/Director



Outlook

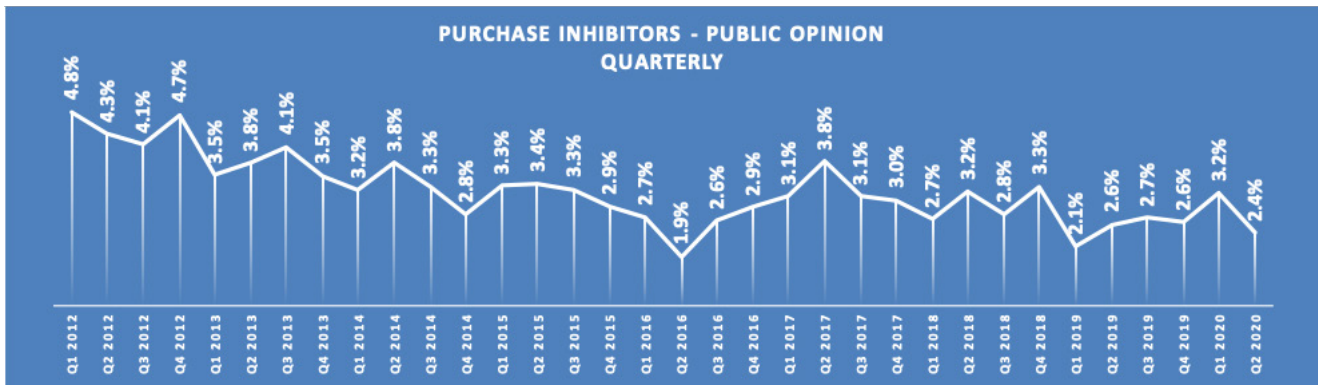
We may never be able to fully measure the impact of negative industry perceptions that prevailed in the immediate aftermath of the 2008 Global Financial Crisis, when business aviation's image was badly tainted by the unfortunate optics of 3 auto executives arriving in Washington, D.C. on 3 different business jets to ask for federal aid from the U.S. Congress' Financial Services Committee. Despite the fact that at least 2 of the 3 CEOs were actually required by their companies to fly privately for security reasons, and that they may have had every reason not to share a cabin with their fierce competitors, their relative silence in the face of congressional questioning and cross-examination is still remembered as a dark and headlining moment for the industry.

While that unfortunate memory may linger in some corners of society and lawmakers' memories, evidence suggests that public opinion remains a relatively minor albeit ever-present consideration as an aircraft purchase inhibitor, at least in the U.S. (see chart below). Results from JETNET iQ's Q2 2020 Survey of business aircraft owners and operators provide some good news indeed, hopefully reflecting a better understanding of the diverse ways in which business and general aviation aircraft can be amongst the most effective tools at hand in times like these.



JETNET iQ Surveys: Public Opinion as an Aircraft Purchase Inhibitor

Weighted Average Score on a Scale from 0 to 100% Based on 'Public Opinion' Share of All Responses
U.S.-Based Owners / Operators Only



Source: JETNET iQ

The Light Year



Janine K. Iannarelli
President



In the beginning of 2020, no one would have thought that anything but a U.S. Presidential election was going to be disruptive to aircraft sales for this calendar year. That all abruptly changed late in the first quarter when state by state and country by country borders closed and the transactional marketplace for business aircraft more or less shutdown. Here at Par Avion, it did not take long to realize that business as we have conducted for the past 23 years was going to get tossed a curve ball in light of the fact that a huge percentage of our sales are cross-border transactions. Harking back to April to a townhall I participated in, and thinking about the limitations on travel, I prophesized that this was going to be the year of the light jet for no reason but the realization that the traveling public would be limited as to where they could go. Six months into the pandemic, our own activity level is supporting this claim.

Why, you may ask, is the favored category of aircraft the “light” one? Simply put, the airplane, be it a turboprop or small jet, meets the vast majority of travel requirements for existing, as well as new, entrants to the market in today’s environment. Large cabin, long range, or mid- to super mid-size jets are de rigeur for international trips or flights that are in excess of 2,000 nautical miles. However, for the vast majority of business and private aircraft users that is more airplane than is needed for their trips which might average 1,000 nm or include city pairs such as New York City to Palm Beach, or Houston and Atlanta. In terms of volume, demand for larger aircraft pales in comparison to that of the small jet given that business travel originating in the U.S. is restricted for the most part to domestic trips and the fact that options for leisure travelers are limited. While the percentage of aircraft for sale of the installed base for select small jet models has increased year over year, so have sales. This was evident in the September 10, 2020 issue of JETNET iQ Pulse where it was reported that small jet transactions were up by 50% in July as compared to the same period in 2019.

The light jet category offers numerous options for a buyer with a budget from \$1.00MM to \$6.00MM. Choices range, for example, from a classic (25 years or more) Citation V to a later production aircraft such as the CJ3+ with the Garmin 3000 cockpit, to a whole host of options in between. These are aircraft that also do not break the budget in terms of their fixed and variable costs, particularly important considerations for first-time buyers who are perhaps transitioning from a fractional share or charter into whole ownership. The capital investment is almost secondary to the ongoing operational costs and hence the further appeal of a means of personal transport that will take the family to their second home.

A phenomenon that has occurred since the great recession of 2008 is the idea of the disposable jet. This loosely translates into an aircraft that has time remaining of, say 3-5 years, before coming due for a major engine or airframe event that would require a significant investment that likely would exceed the present market value for the plane. This category of aircraft offers numerous viable options that are within reach of a new group of prospective buyers. While this phenomenon exists across the size spectrum of classic aircraft, it has contributed most to the popularity of the small jet thereby affording new entrants the opportunity to experience the wonders of travel by private aircraft - for less.

If attractive entry level price points were not enough to generate demand, the COVID-19 virus is filling the gap. Concern over potential exposure given the numerous touchpoints associated with airline travel and the loss of commercial routes is heightening customer interest in private jet travel.



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Business Conditions

GDP



The Economist's **GDP forecasts** for the U.S. and Euro Area economies for 2020 are -5.3% and -8.6% respectively in 2020; U.K.'s 2020 growth rate is -9.5%; China is the only major business aviation economy expected to grow in 2020, but by only 1.7%



Business jet cycles (take-offs and landings) in August 2020 were down by -28% YOY for U.S. Part 91, up by 4% YOY for U.S. Part 135, and flat YOY for U.S. Part 91K



The **Dow Jones Index** (U.S.) was down 6.0% YTD from January 2 to September 21, 2020, and up 0.7% YOY; The **FTSE 100** (U.K.) was down 22.4% YTD from January 2 to September 21, 2020, and down by 19.4% YOY



U.S. Index of **Consumer Sentiment** was 78.9 in Sept. 2020, versus 74.1 in August and 93.2 in September 2019 YOY; Euro Area **Economic Sentiment Indicator** was 87.7 in August 2020, up from 82.4 in July but down from 103.4 in February 2020 at the onset of COVID-19



U.S. initial **unemployment claims** were 61.0 million in the 26 weeks ending September 12, 2020; U.S. unemployment rate (SA) was 8.4% in August 2020 (representing ~13.6 million people)



U.S. **Purchasing Manager Index** (PMI) was 56.0% in August 2020, up from 50.9% at the beginning of the year; Euro Area **Business Climate Indicator** was -1.33 in August 2020, up from -1.80 in July



Transactions of pre-owned business jets (retail sales and leases) in August 2020 (preliminary) were down 18% YOY to 173 while days-on-market were up 4% to 292 days YOY based on JETNET data



Business jet deliveries YTD as of Sep. 21 were 304 units (including Cirrus, Boeing, Airbus) and turboprop deliveries were 145 according to JETNET; Q2 2020 shipments are expected to be the low point of the current COVID-19 down cycle

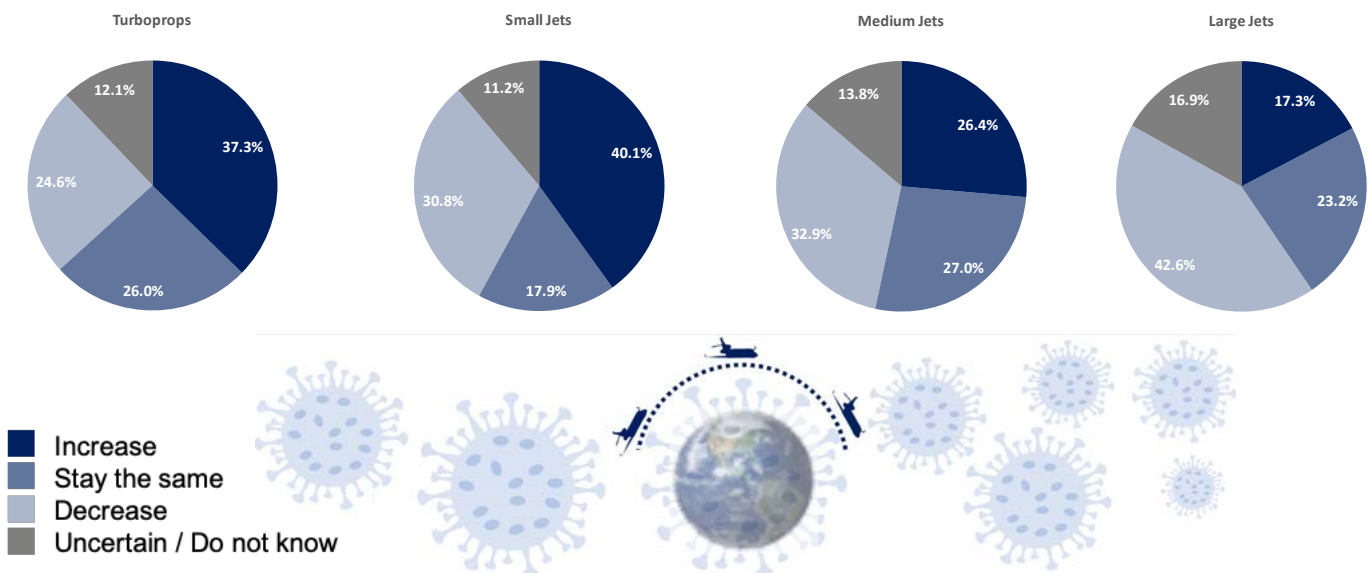
Post COVID-19 Aircraft Purchase Intentions

Q2 2020 JETNET iQ Survey - All Respondents

More than 500 business aircraft owners / operators responded to the multilingual Q2 2020 JETNET iQ Global Business Aviation Survey. Based in 62 countries and flying more than 4,700 fixed-wing turbine aircraft, survey respondents’ “voices of the customer” insights are at the core of JETNET iQ’s unique business aviation market intelligence. Amongst other topics, respondents were asked their opinion on post COVID-19 aircraft purchasing intentions, specifically regarding various aircraft size categories. Fully 23% of respondents indicated that they made their organization’s last turbine aircraft purchase decision, while a further 38% influenced that decision. Collectively, respondents believe that net purchase intentions for both the turboprop and small jet segments will likely increase, in contrast to larger jet categories. Whether this simply reflects today’s challenges with closed international borders and quarantine requirements or a larger shift in how customers perceive the value of business aircraft is unclear. Should intentions translate into actual orders on a sustained basis, such changes could represent a significant shift in the business aircraft marketplace.



How do you feel business aircraft purchase intentions for the following categories are most likely to be affected after COVID-19?



Source: JETNET iQ

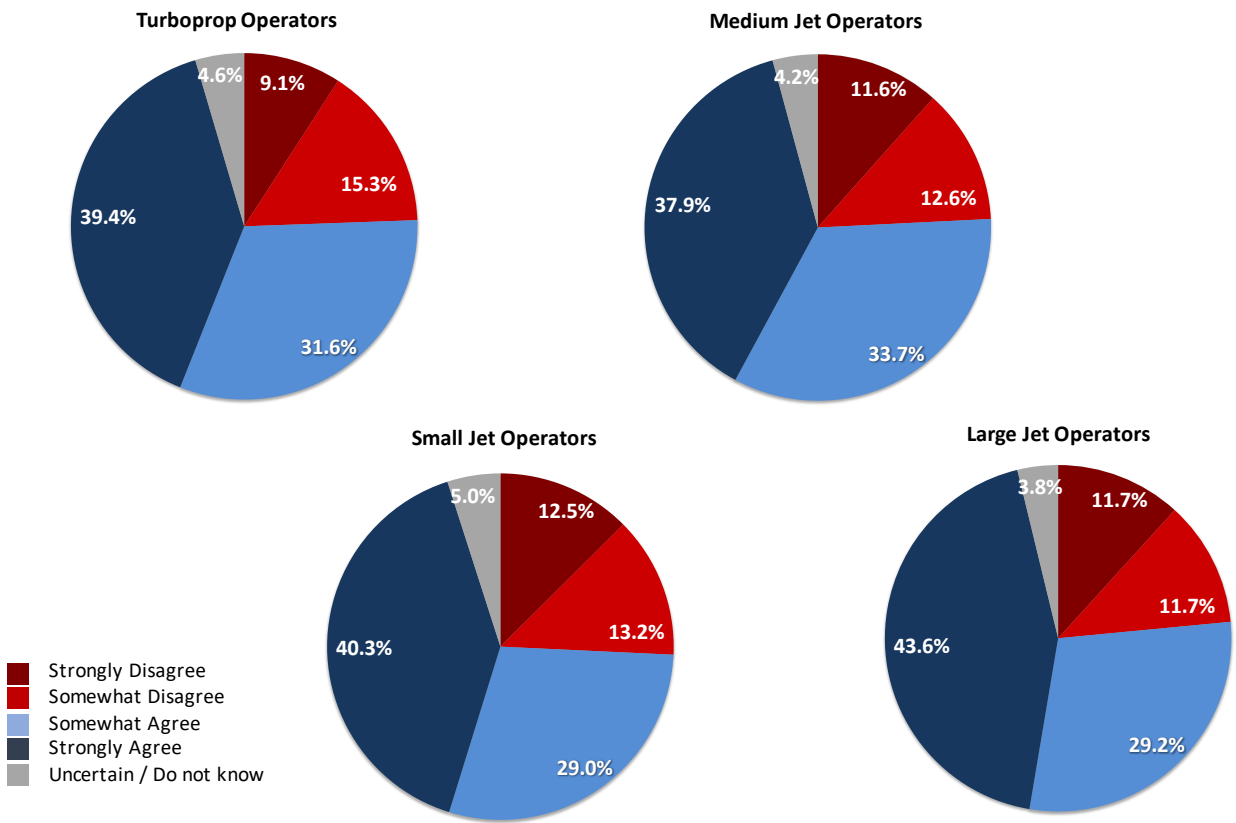
Unscheduled Aircraft Maintenance

Q2 2020 JETNET iQ Survey - Intentions By Aircraft Size Category

With temporarily lower demand for flights, a strong majority of savvy aircraft owners / operators across all size categories are taking advantage of available MRO capacity and service slots to have unscheduled maintenance performed. Particularly popular installations and work scope packages include avionics and WiFi upgrades, fresh paint, and interior refurbishments. Respondents across all aircraft size categories in JETNET iQ's Q2 2020 Survey rated Garmin highest amongst all avionics OEMs, a clear endorsement even though the company has yet to penetrate the factory-installed large cabin segment.

OEM-owned and authorized service centers and independent MRO shops are supporting a steadily aging business aircraft fleet, paced by the traditional light jet (averaging 23 years since initial delivery) and turboprop (24 years) categories. While market prices for older pre-owned business aircraft have slipped since the onset of COVID-19, and Jet-A fuel prices remain low, these savings may inevitably be offset by higher maintenance expenditures and the associated, albeit difficult-to-measure, costs of lower dispatch reliability and opportunities missed as a result of an AOG event.

I / we are taking the opportunity of COVID-19 to perform unscheduled maintenance / upgrades to our business aircraft



Source: JETNET iQ

U.S. Business Jet Utilization

July / August / September: 2020 vs. 2019

Small Jets continue to lead the way in the COVID-19 world of business jet flight operations, at least in the United States. Our on-going analyses of business jet flight cycles (takeoffs and landings) by operational category reveal that size doesn't seem to matter as much as it has traditionally mattered, at least for the time being. Through September 21, Part 135 on-demand charter operations in Q3 2020 are essentially on par with the

same period in 2019 for the Small Jet category, an impressive performance to say the least. Flight operations recovery appears to be inversely related to aircraft size, ostensibly reflecting demand for value-priced small jets in today's transformed marketplace with sharply lower commercial aircraft flight schedules and available front-of-the-cabin premium seats.

Flight Activity:

July 1 - Sept 21, 2020 versus July 1 - Sept 21, 2019

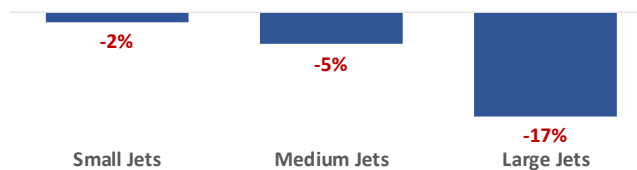
PART 91



Flight Activity:

July 1 - Sept 21, 2020 versus July 1 - Sept 21, 2019

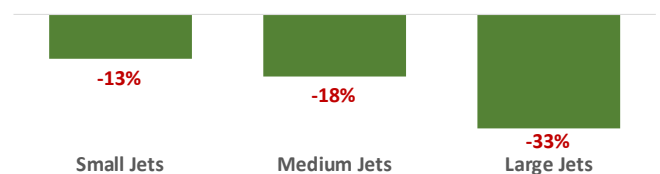
PART 135



Flight Activity:

July 1 - Sept 21, 2020 versus July 1 - Sept 21, 2019

PART 91K



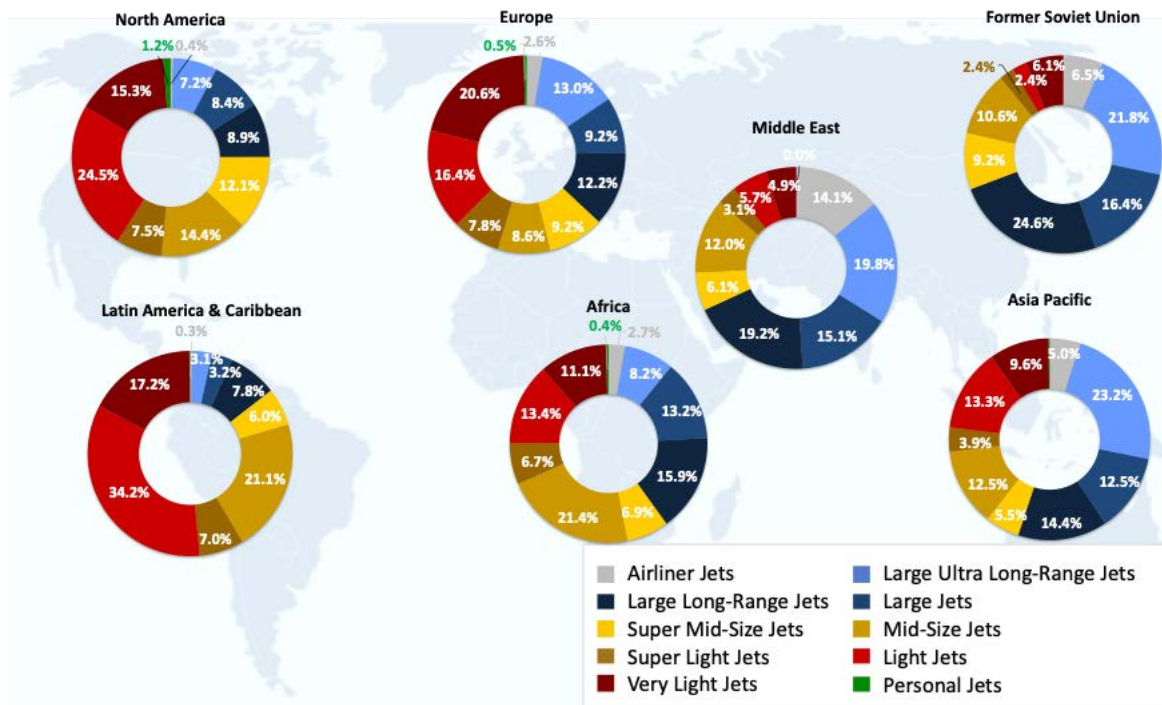
Sources: JETNET iQ

Business Jet Fleet Distribution

Worldwide and By Region

While the relative strength of the Small Jet segment (i.e. Very Light Jet and Light Jet models) is particularly notable in today's COVID-19 impacted marketplace, the fleet is highly concentrated in North America, Latin America & Caribbean, and Europe. Together, these 3 regions account for almost

8,200 Small Jets, or 94% of the world fleet of very light and light jets today. Shorter-range missions, higher densities of B&GA airports / pilots / AMT populations, and local aircraft production all contribute to the popularity of small jets in these parts of the world.



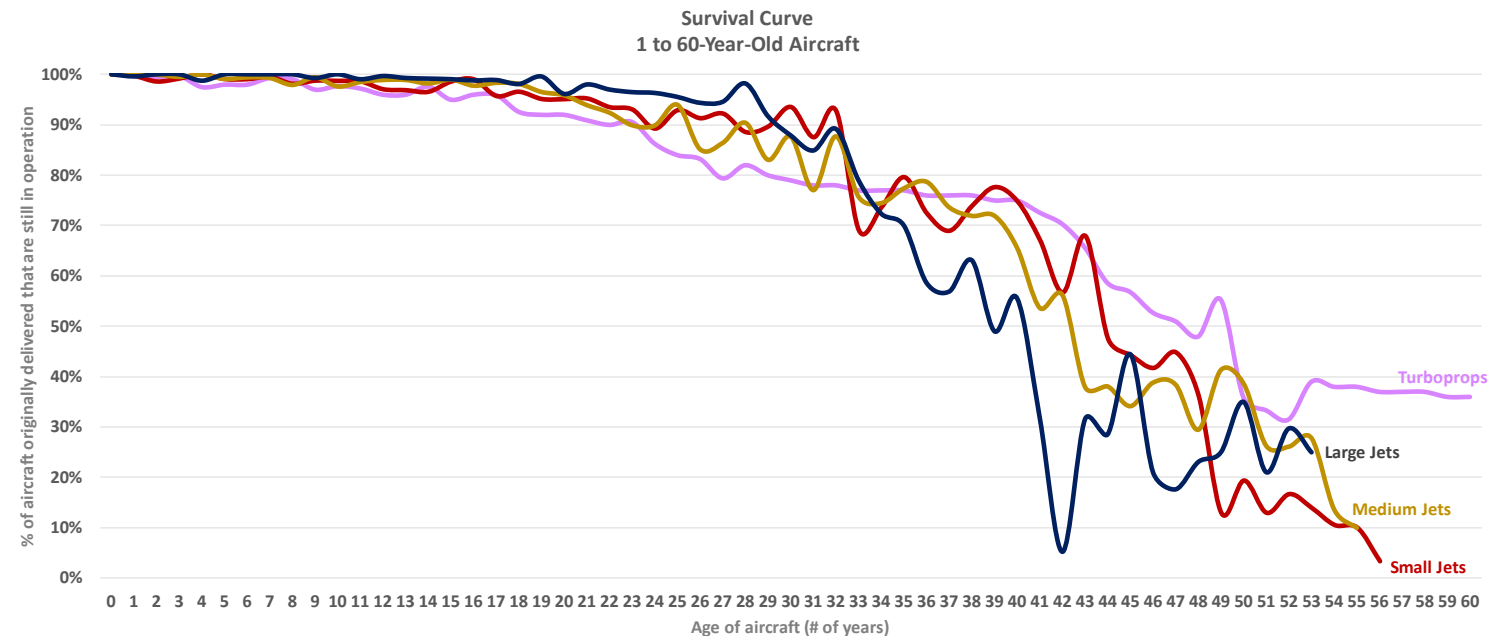
Source: JETNET IQ

Business Aircraft Survivor Curves

Not Your Daddy's Oldsmobile

With typically low annual rates of utilization, warm and dry hangar accommodations, and attentive maintenance, most business aircraft are long-lived air transportation assets. Unlike commercial passenger airliners, whose useful economic life is commonly in the range of 15-20 years, business aircraft tend to remain in operation for a much longer period, with approximately half the fleet still active more than 40 years

after initial factory delivery. While direct comparisons with commercial airliners are fraught with complexity, a well-maintained and regularly upgraded business aircraft can represent a long-term value investment that delivers private, safe, secure, and economical travel conveniences that are very much in demand in today's marketplace.



Source: JETNET iQ

About JETNET iQ

JETNET iQ is a business aviation market 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, owner / operator surveys, and detailed delivery and fleet forecasts;
- **JETNET iQ Summits** are annual industry conferences providing unique data, insights and networking opportunities; and
- **JETNET iQ Consulting** provides customized research and analysis for clients on a project-by-project basis.

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Since late 2010, JETNET has conducted quarterly surveys of the worldwide community of business aircraft owners and operators in order to gauge customer sentiment, brand perceptions, aircraft purchase, selling, and utilization expectations, and other factors. JETNET iQ Global Business Aviation Surveys are password-protected and by invitation-only. Potential respondents are drawn randomly from the JETNET worldwide database of business jet and business turboprop owners and operators; they are initially contacted by telephone and/or e-mail by JETNET's team of multilingual researchers. Target respondents include chief pilots, directors of aviation, and senior management. Each survey includes at least 500 respondents in 50 or more countries each quarter, and respondents closely reflect the worldwide distribution of the business jet and turboprop community.

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Appendix

Data sources:

GDP growth forecasts, Unemployment Rate, \$U.S. Exchange Rate (2020): The Economist – September 19, 2020
<https://www.economist.com/economic-and-financial-indicators/2020/09/03/economic-data-commodities-and-markets>

Stock Markets:

Dow Jones Industrial Average: <http://ca.spindices.com/indices/equity/dow-jones-industrial-average>

London Stock Exchange (FTSE 100) : <https://www.londonstockexchange.com/indices/ftse-100>

Unemployment: Bureau of Labor Statistics (U.S.); <https://www.dol.gov/ui/data.pdf>; "SA" = seasonally adjusted

Consumer Confidence: University of Michigan Survey of Consumers (U.S.); <https://data.sca.isr.umich.edu/fetchdoc.php?docid=65386>;

European Commission (Euro Area) – Economic Sentiment Indicator; https://ec.europa.eu/info/sites/info/files/full_bcs_2020_08_en.pdf

Business Confidence: US ISM Manufacturing PMI (U.S.)

<https://www.instituteforsupplymanagement.org/about/MediaRoom/newsreleasedetail.cfm?ItemNumber=31182>

Eurostat (Euro Area); <https://ec.europa.eu/eurostat/databrowser/view/teibs010/default/table?lang=en>

Business aircraft fleet, deliveries, transactions, days-on-market (DOM), utilization: JETNET; DOM refers to aircraft that were sold / leased

Survey results: JETNET iQ Global Business Aviation Surveys (Quarterly)

Photo credits: Page 3: Par Avion Ltd.; all other photos: Rolland Vincent Associates, LLC / JETNET iQ

Definitions and Abbreviations:

For the purposes of these Reports, business aircraft may be classified into 4 primary categories, reflecting propulsion, price, performance, and weight class differences. These categories are: Turboprops (Single-Engine Turboprops - SETP and Multi-Engine Turboprops - METP), Small Jets (Personal Jets, Very Light Jets, Light Jets), Medium Jets (Super-Light Jet, Mid-Size Jet, Super Mid-Size Jet), and Large Jets (Large Jet, Large Long-Range Jet, Large Ultra Long-Range Jet, Airline Business Jet). The "Personal Jet" category includes single-engine turboprop-powered models, today represented by the Cirrus Vision Jet.

B&GA: Business and general aviation

QOQ: Quarter over Quarter

EIS: Entry in Service

QTD: Quarter to Date

FTSE: Financial Times Stock Exchange (London)

S&P: Standard & Poor's

GAMA: General Aviation Manufacturers Association

TTM: Trailing Twelve Months

GDP: Gross Domestic Product

YOY: Year over Year

MTOW: Maximum Takeoff Weight

YTD: Year to Date

NGO: Non-Governmental Organization

OEM: Original Equipment Manufacturer

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