

- 1 Editorial
- 2 Outlook and Forecast
- 3 COVID-19 Impacts
- 4 The Economy
- 5 Fleet and Deliveries
- 6 Transactions
- 7 Utilization
- 8 Business Aviation Challenges
- 9 Net Promoter Score
- 10 Sustainable Fuels
- 11 About JETNET iQ
- 12 Appendix

## What's LUV Got To Do With It?

Forecasts and “what-if” scenarios are suddenly de rigueur, as leaders of business, government, and our broader society try to grasp the deep impacts and reverberations of COVID-19. Perhaps never before in our generations’ collective memories have we faced such a stupefying foe, one that is invisible, pervasive, hyper-contagious, and toxic in the extreme. All corners of the civil aviation market are sustaining wind shear forces just weeks into the worldwide pandemic, with forecasts suggesting plenty more to come before the storm passes. Forecasters, hard at work running countless “what if” scenarios with just-arriving data, are doing some of the heaviest lifting to support strategic decisions that need to be taken now to preserve capital and jobs, and in some cases even to ensure business continuity. This is absolutely not the time to be flying blind.

The key questions may be straightforward, but the answers are complicated. While the debates rage about which comes first - health or economy - the simple truth is that they are both vital. While the timing of a health recovery is governed by the discovery and distribution of a vaccine, no one knows when this will occur; in our world of super-connectivity and a shared enemy, we are hopeful that it will be sooner than later. In the interim, we already know that economic activity has sharply declined since mid-March 2020, with few sectors

as hard hit as civil aviation. Although our industry is not alone in its suffering or its search for pain relief, getting back to some semblance of normal could take longer than any of us would like to imagine or endure. COVID-19 has already put institutions as powerful as the U.S. Government into its most egregious fiscal position in history – all in the span of a few weeks. Quickly approved stabilization and stimulus legislation, measured in the trillions of dollars, already dwarfs all previous interventions, and may be inadequate to reinvigorate a \$21T economy, the world’s largest. How our children and their children are going to pay for all this, we don’t know, but it is fair to say that they will have many questions for their parents’ generation.

***“This is absolutely not the time to be flying blind.”***

In this issue of JETNET iQ PULSE, we examine the shape of recoveries – L, U, V, and others – and try to shed light on one of these questions: When do we get back to normal?

Rollie Vincent  
JETNET iQ Creator/Director



## Outlook and Forecast

In our 1st Issue of JETNET iQ PULSE, we introduced COVID-19 as the Black Swan of swans, an unprecedented shockwave that has already reverberated globally, grounding all forms of air transport in the last few days and weeks. Other shocks in our lifetimes – the 2008 financial crisis, 9/11 attacks in 2001, the dot-com bubble in 2000, the Asian financial crisis in 1997, Black Monday in 1987, the oil crises in 1973 and 1979 – simply do not compare to COVID-19 in terms of either their financial impacts or day-to-day disruptions to our ways of life. In the first half of April 2020, sharp production cutbacks at Boeing, Airbus, Spirit AeroSystems, and Rolls-Royce have added to previously announced slowdowns at Textron Aviation, Bombardier, Embraer, and GE Aviation to darken the outlook for the entire civil aerospace supply chain. While primarily reflecting the dramatic changes in commercial airline demand - with daily passenger traffic at U.S. airports down a stunning 95% YOY by some measures - we are closely watching indicators of activity in business aviation, with flights and hours down by 75-80% over the last 30 days versus the same period in 2019. While some owners / operators are taking the long view and are having maintenance and upgrade work performed during this lull in end-user demand, most have decided to go quiet, sitting the cycle out, putting their aircraft into temporary or even long-term storage. Some have decided to downsize and put an aircraft or two on the market, although buyers have been slow to come forward. Pre-owned business jet inventory was 2,237 units on April 15, or 9.9% of the fleet, up about 135 aircraft or 6% YOY. These are not fire sale numbers by any stretch of the imagination, although aircraft pricing and valuation precision is next to impossible to ascertain in the current environment, with an absence of new and pre-owned transactions.

When we consider the shape of a recovery in business aircraft demand, we have to first estimate the point at which things bottom out from here. We foresee a very quiet period that will endure through most of the rest of this year. Sales and customer delivery of new and pre-owned business aircraft tend to spike in Q4, and there is no reason to believe that this will not be repeated in 2020. We expect sales to be much lower than in Q4 2019 both nominally and on a value basis, with activity juiced by the types of deals that can be negotiated before the clock strikes midnight on December 31. Dampening our sales outlook is the fact that buyers will still be processing an abrupt onset of economic recession in many of the world’s largest economies, all of which are vital to business aviation. OEMs will not suffer equally, as some came into the year better positioned and prepared than others, especially as regards 2020 sold-to-unsold production ratios. JETNET iQ proprietary research provides unique insights into a variety of factors that differentiate OEMs, including customer satisfaction and loyalty, net promoter scores, brand quality and brand awareness ratings, order backlogs, financial and operational performance, and product development investment.

Looking back at the buildup and aftermath of the 2008 financial crisis, the shapes of the recovery depend upon the metric chosen, and even the segment of the market under consideration. New jet delivery volumes never really recovered, especially in the lower half of the market; pre-owned jet sales bounced back steadily and ended up well above prior volumes as for-sale inventory steadily declined. In the U.S., business jet cycles (takeoffs and landing) have still not returned to 2007 levels, and are today down sharply in the COVID-19 era. Whether the trajectory of a recovery is shaped like an L, U, or V or something that looks more like a Nike “swoosh” depends as much upon the underlying metric as anything else. Deliveries typically lag, while pre-owned transactions, inventory, and utilization are better indicators of the current market. Turboprops just seem to work and work in all economic conditions and business cycles, maintaining their sales volumes and values while doing a lot of the heavy lifting, all without making too much noise and vibration (OK, well maybe a little...).

For additional information on this outlook and forecast and/or to subscribe to our research, please contact us.



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 Paul Cardarelli - Tel: 315-797-4420, ext. 254 or paul@jetnet.com

## COVID-19 Impacts

### GDP



Initial estimates of U.S. and Euro Area **GDP growth** for 2020 vary, with The Economist projecting -2.9% (U.S.) and -5.9% (Euro area), and the IMF forecasting -5.9% (U.S.) and -7.5% (Euro area)



**Business jet cycles** (take-offs and landings) from mid-March to mid-April 2020 were broadly down YOY, by 74% (U.S. Part 91), 61% (U.S. Part 135), 72% (U.S. Part 91K) and 54% (Europe - all operations)



The **Dow Jones Industrial Average** (New York) was down 19% from January 2 to April 15, 2020; The **FTSE 100** (London) was down 26% over same period



U.S. and Euro Area **consumer confidence** was down sharply by 11.9 points and 8.9 points respectively in March 2020 vs. February; fear and containment of COVID-19 are the dominant concerns today in restoration of U.S. confidence



U.S. initial **unemployment claims** were 22 million in the 4 weeks ending April 11, 2020, 26x higher than the same period YOY, and the largest ever recorded since measurements began in 1967



U.S. and Euro Area **business confidence** dropped by 1.0 points (to 49.1) and by 8.9 points (to 94.5) respectively in March 2020 vs. February



**Transactions** of pre-owned business jets (retail sales and leases) in March 2020 were down 23% based on preliminary data recorded by JETNET as of March 31, 2020

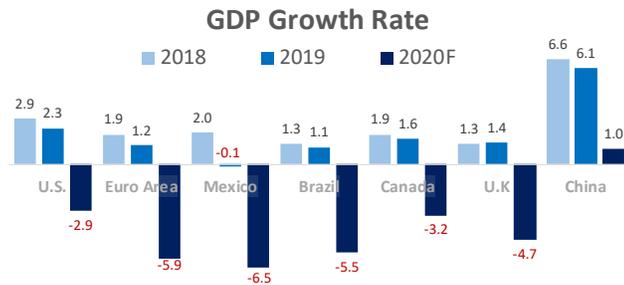


Most OEMs and their supply chains have paused production; supply and demand disruptions will drive deliveries down in 2020 versus prior forecasts, with some OEMs better positioned than others

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## The Economy

### Economic Growth



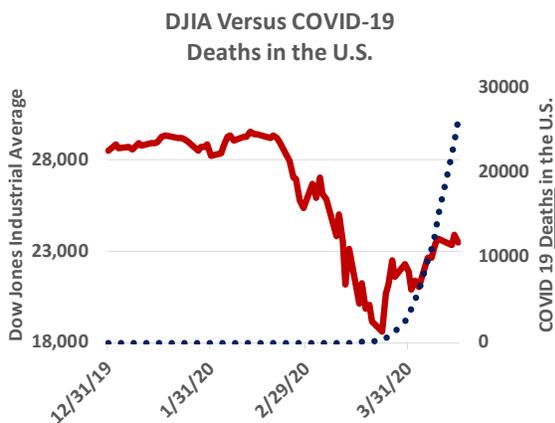
Although the full extent of the devastating impact of COVID-19 on the world economy is still evolving, GDP growth forecasts and stock market indices have fallen sharply in 2020. GDP growth estimates for 2020 have fallen sharply in the last few weeks, with most key business aviation country markets falling into recession.

The U.S. *dollar* has strengthened YTD against key currencies since the COVID-19 pandemic was announced. This is particularly the case against the Mexican *peso* and Brazilian *real*, which are the #2 and #3 country markets for business jets after the United States.

A recovery in stock prices in late March 2020 was largely the result of an unprecedented \$2 trillion stabilization and stimulus package signed into law by the U.S. government on March 27. Many economists predict that massive additional interventions will be necessary to stabilize economies on a scale not seen since World War II.

### COVID-19 vs. the Stock Market

January 1, 2020 - April 15, 2020



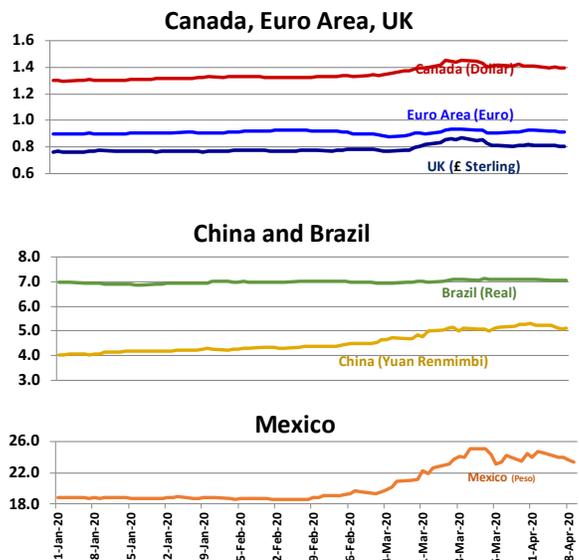
### Exchange Rate

Exchange Rates vs USD	4/10/20	1 Month Ago	% Change	1 Year Ago	% Change
Euro Area	0.91	0.88	3.6%	0.89	2.9%
United Kingdom	0.80	0.77	3.6%	0.76	4.9%
Canada	1.40	1.38	1.4%	1.33	4.8%
Mexico	23.42	21.05	11.3%	18.83	24.4%
Brazil	4.76	4.67	1.9%	3.83	24.4%
China	7.03	6.95	1.1%	6.72	4.7%

### Foreign currency units per U.S. Dollar

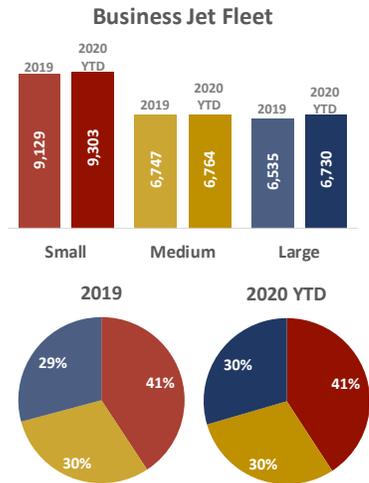
January 1, 2020 – April 10, 2020

Increase - stronger U.S. Dollar

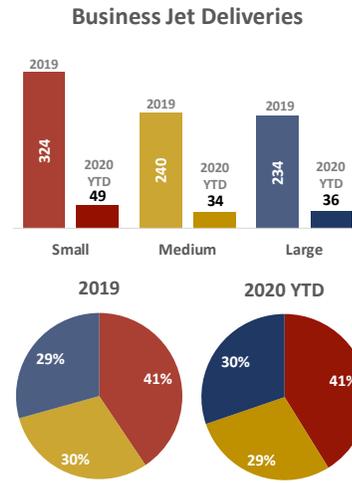


## Fleet and Deliveries

### Business Jet Fleet



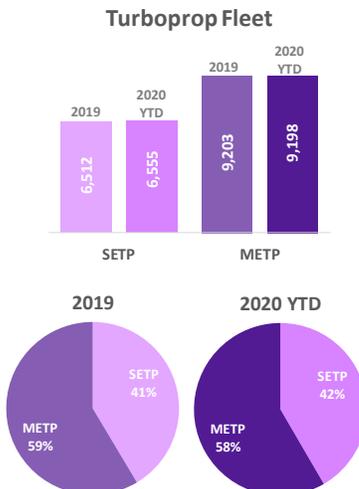
### Business Jet Deliveries



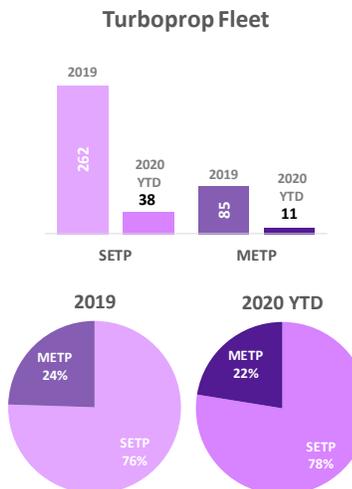
Worldwide deliveries of business jets and turboprops are off to a comparatively slow start in 2020, with just 119 new jets and 49 new turboprops shipped YTD through mid-April 2020, according to JETNET records. Production furloughs at Textron Aviation,

Bombardier, Embraer, GE Aviation, Rolls-Royce and others are amongst the early signs of what is likely to be a very sharp downturn in new aircraft delivery volumes in 2020.

### Turboprop Fleet



### Turboprop Deliveries



## Transactions

### Preowned Business Jet Transactions



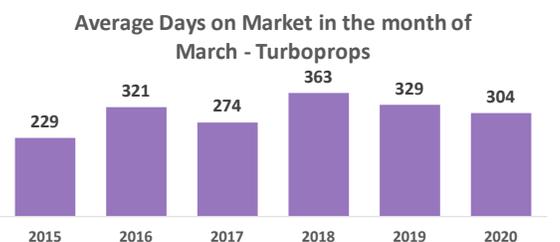
Full sale lease transactions for business jets in March 2020 of 158 were down 23% from March 2019. Transaction velocity (as measured by Days on Market for pre-owned aircraft that are finding retail buyers) averaged 318 days in March 2020, representing a lengthening of 22% over March 2019.

Turboprop transactions have not changed significantly, with 131 full sale lease transactions in March 2020 representing a

4% reduction over the same month last year. Average Days on Market for turboprops were actually lower YOY at 304 days – a shrinking of 8%.

Given that the COVID-19 was only announced as a global pandemic on March 11, 2020, these data likely do not yet reflect the full impact of the coronavirus.

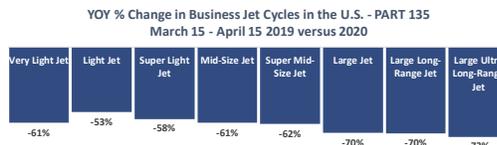
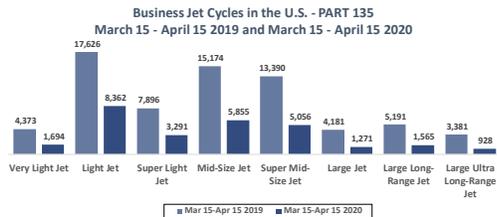
### Preowned Turboprop Transactions



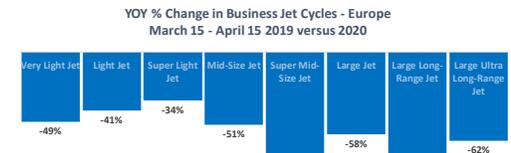
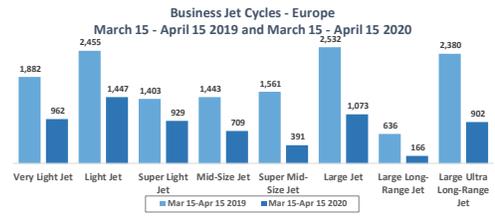
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## Utilization

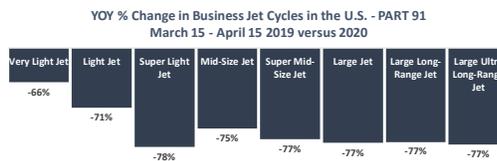
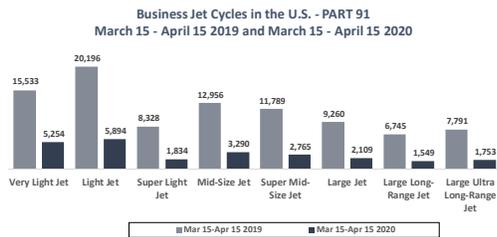
### U.S. Business Jet Utilization



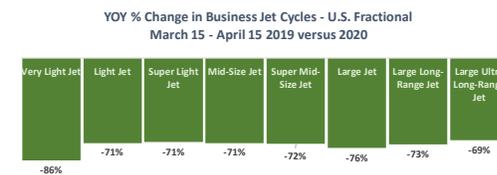
US Part 135	March 15 - April 15, 2019	March 15 - April 15, 2020	% Change YOY
Total Flights	71,212	28,022	-61%



Europe	March 15 - April 15, 2019	March 15 - April 15, 2020	% Change YOY
Total Flights	14,292	6,579	-54%



US Part 91	March 15 - April 15, 2019	March 15 - April 15, 2020	% Change YOY
Total Flights	92,598	24,448	-74%



Fractional - U.S.	March 14 - April 14, 2019	March 14 - April 14, 2020	% Change YOY
Total Flights	24,643	6,913	-72%

On March 11, 2020, the WHO declared COVID-19 a pandemic as the novel corona virus continues to proliferate across the globe, with few countries untouched by its impact. In an effort to curb the fallout from this illness, a multitude of jurisdictional restrictions have been implemented worldwide to contain and slow the spread of the disease.

As a result of severe travel restrictions implemented by many countries, commercial aviation has been devastatingly reduced, with airlines worldwide reporting 90-100% reductions in flights and passenger enplanements in April versus the same period last year.

From mid-March to mid-April 2020, business jet cycles in the U.S. and Europe were down sharply YOY. The hardest hit sectors were U.S. Part 91 non-commercial flight operations (down 74%) and U.S. Part 91K fractional operations (down 72%).

## Business Aviation Challenges

Challenges facing business aviation in the next 5-10 years  
Q1 2020 JETNET iQ Survey

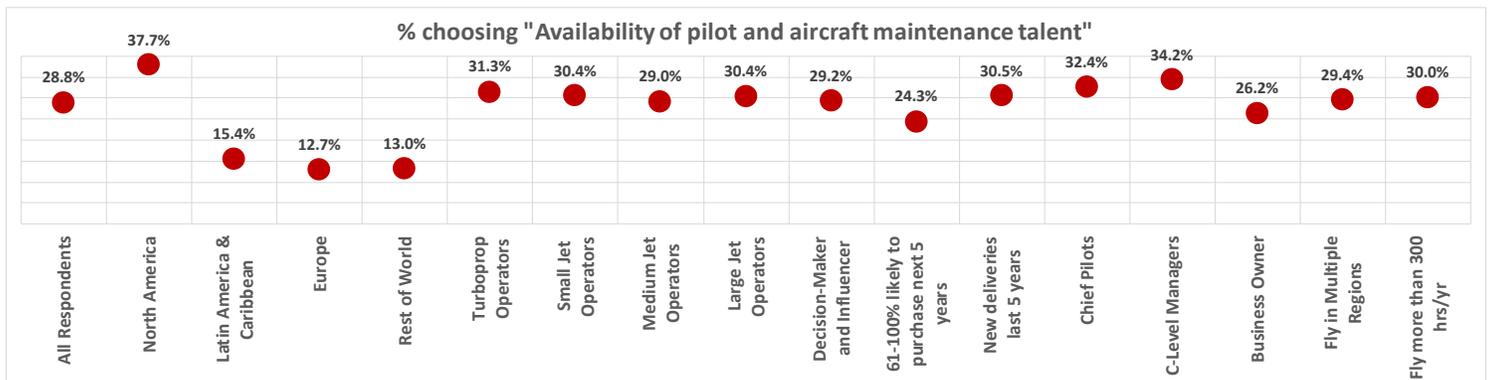
### All Respondents



In the Q1 2020 JETNET iQ survey, business aircraft owners / operators were asked about key challenges facing business aviation in the next 5-10 years. Response choices were derived from two previous JETNET iQ surveys conducted in 2019, in which respondents shared their opinions through an open-ended question. Respondents were asked to identify one challenge only.

In Q1 2020, the availability of pilot and aircraft maintenance talent was of paramount concern (selected by 29% of respondents), resulting primarily from increased demand for talent by commercial airlines. Regionally, ~38% of North American-based respondents highlighted talent availability as the #1 challenge for the industry, considerably higher than any other region (see chart below). Other respondent groups who were most concerned about the future availability of pilot and maintenance personnel included C-level managers (34%) and pilots themselves (32%).

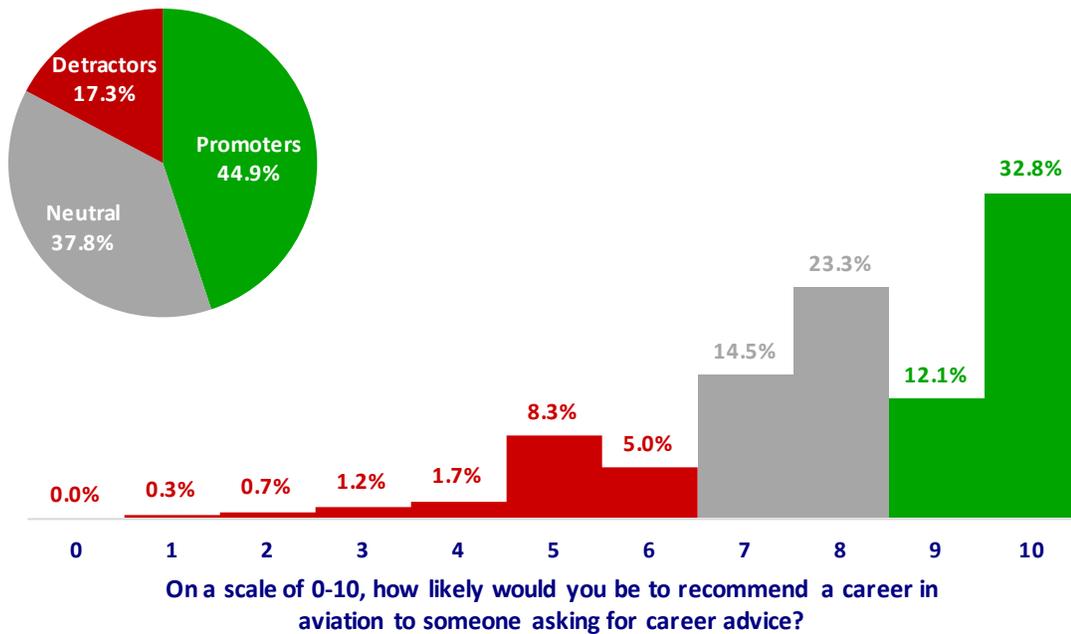
Economic conditions and operating costs were ranked as the #2 and #3 industry challenges, followed by public perception, with considerable regional variation in the survey response data. About 11% of European-based respondents were most concerned about public perception, the highest amongst the regions we track, followed by North America (6%) and Latin America & Caribbean (4%) – see chart below.



## Net Promoter Score

**Business Aviation Net Promoter Score**  
Q1 2020 JETNET iQ Survey

### All Respondents



JETNET iQ surveys are designed to generate response data to generate Net Promoter Scores (NPS) that provide customer loyalty scores for aircraft brands and aircraft models, and employee loyalty scores for the aviation industry as a career employer.

Using a 0-to-10 scale, where “10” is highest, respondents are asked about the likelihood that they would recommend the aviation industry as an employer to someone seeking career advice. Respondents who select “9” or “10” are considered Promoters – someone likely to speak very positively about the aviation industry. Respondents scoring “0” through “6” are categorized as Detractors – someone likely to have less enthusiasm for the industry in a conversation about career opportunities. NPS scores range from -100 to +100. An NPS of 0 to 50 is considered “Good”, while a score above 50 is considered excellent. Based on responses to the Q1

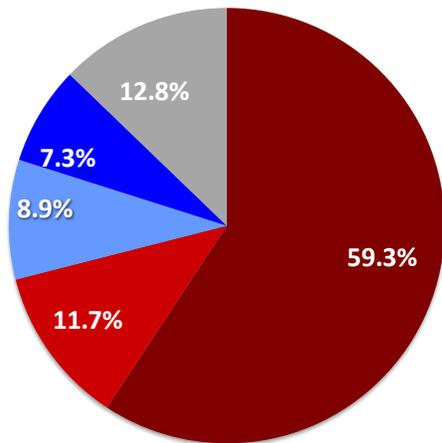
2020 JETNET iQ Survey, the overall NPS for business aviation for all respondents was 28, which is measured as Promoters (the % of respondents providing a “9” or “10” score) minus Detractors (the % of respondents scoring “0” to “6”). There is considerable regional variation in the results, with North America registering the strongest support for the aviation industry as a career choice (NPS of 33), followed by Latin America & Caribbean (28), Rest of World (Former Soviet Union, Asia Pacific, Africa and Middle East at 16), and Europe (0). Although some regional variation in results could be expected given socio-economic and cultural differences and transport mode preferences, the degree of variation is relatively high and suggests that there is work to do in enhancing the industry’s image as an employer of choice.

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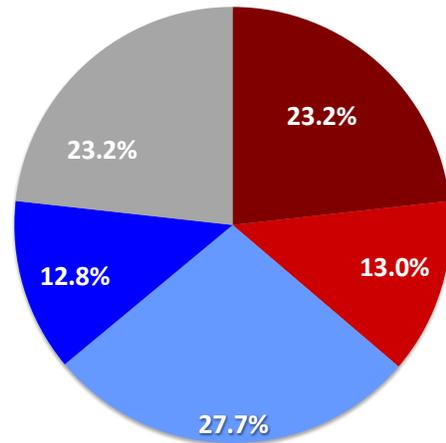
## Sustainable Fuels

### Opinion Question – Sustainable Fuels Q1 2020 JETNET iQ Survey

I/we have flown our business aircraft using sustainable aviation fuels in the last 12 months



I/we will seriously consider flying with sustainable aviation fuels in the next 24 months



■ Strongly Disagree   
 ■ Somewhat Disagree   
 ■ Somewhat Agree   
 ■ Strongly Agree   
 ■ Uncertain

JETNET iQ Survey respondents are asked to evaluate a series of statements (most of which change from quarter to quarter), and to indicate the extent to which they agree or disagree. In Q1 2020, two statements were included regarding prior and intended uses of sustainable alternative fuels (SAF), a topic of growing interest and concern. Although only 16% of decided respondents agreed that they have flown in the past 12 months using SAF, more than 40% agreed that they will seriously consider using SAF in the next 24 months. Notably, almost one-quarter of respondents were uncertain or did not know about their organization’s potential use of SAF in the next 24 months.

Regionally, interest in SAF appears to be strongest in Europe. About 24% of European respondents to the Q1 2020 Survey indicated that they had used SAF within the prior 12 months, with 56% agreeing that they will seriously consider using sustainable fuel over the next 24 months. This bodes well for improved SAF demand and supply, particularly in Europe, one of business aviation’s environmental front lines.

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Paul Cardarelli - Tel: 315-797-4420, ext. 254 or paul@jetnet.com

## 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.

JETNET iQ Reports are available in various formats on a subscription basis, and are published regularly by JETNET LLC, 101 First Street, Utica, NY 13501 - **currently offered at 8 different levels**. JETNET iQ is a partnership between JETNET LLC of Utica, NY and Rolland Vincent Associates, LLC, of Plano, TX.

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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.

For more information on JETNET iQ, please contact:

Rolland Vincent, JETNET iQ Creator/Director

Tel: 1-972-439-2069

e-mail: [rollie@jetnet.com](mailto:rollie@jetnet.com)

To subscribe to JETNET iQ Reports, please contact:

Paul Cardarelli, JETNET Vice President of Sales

Tel: 315-797-4420, ext. 254

e-mail: [paul@jetnet.com](mailto:paul@jetnet.com)

## Appendix

### Data sources:

**COVID-19:** European Centre for Disease Prevention and Control (ECDC) <https://www.ecdc.europa.eu/en/novel-coronavirus-china>

**GDP growth forecasts (2020):**

The Economist – April 4, 2020

<https://www.economist.com/economic-and-financial-indicators/2020/04/04/economic-data-commodities-and-markets>

**Stock Markets:**

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

London Stock Exchange (FTSE 100) : <http://www.londonstockexchange.com/statistics/ftse/ftse.htm>

**Exchange Rates:** U.S. Federal Reserve

**Business Confidence:** US ISM Manufacturing PMI (U.S.); European Commission (Euro Area)

**Consumer Confidence:** University of Michigan Survey of Consumers (U.S.); European Commission (Euro Area) – Economic Sentiment Indicator (ESI)

**Unemployment:** Bureau of Labor Statistics (U.S.); Eurostat (Euro area)

**Business aircraft fleet, deliveries, transactions, utilization:** JETNET

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

### 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).

DJIA: Dow Jones Industrial Average (New York)

FTSE: Financial Times Stock Exchange (London)

GDP: Gross Domestic Product

OEM: Original Equipment Manufacturer

YOY: Year over Year

YTD: Year to Date

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