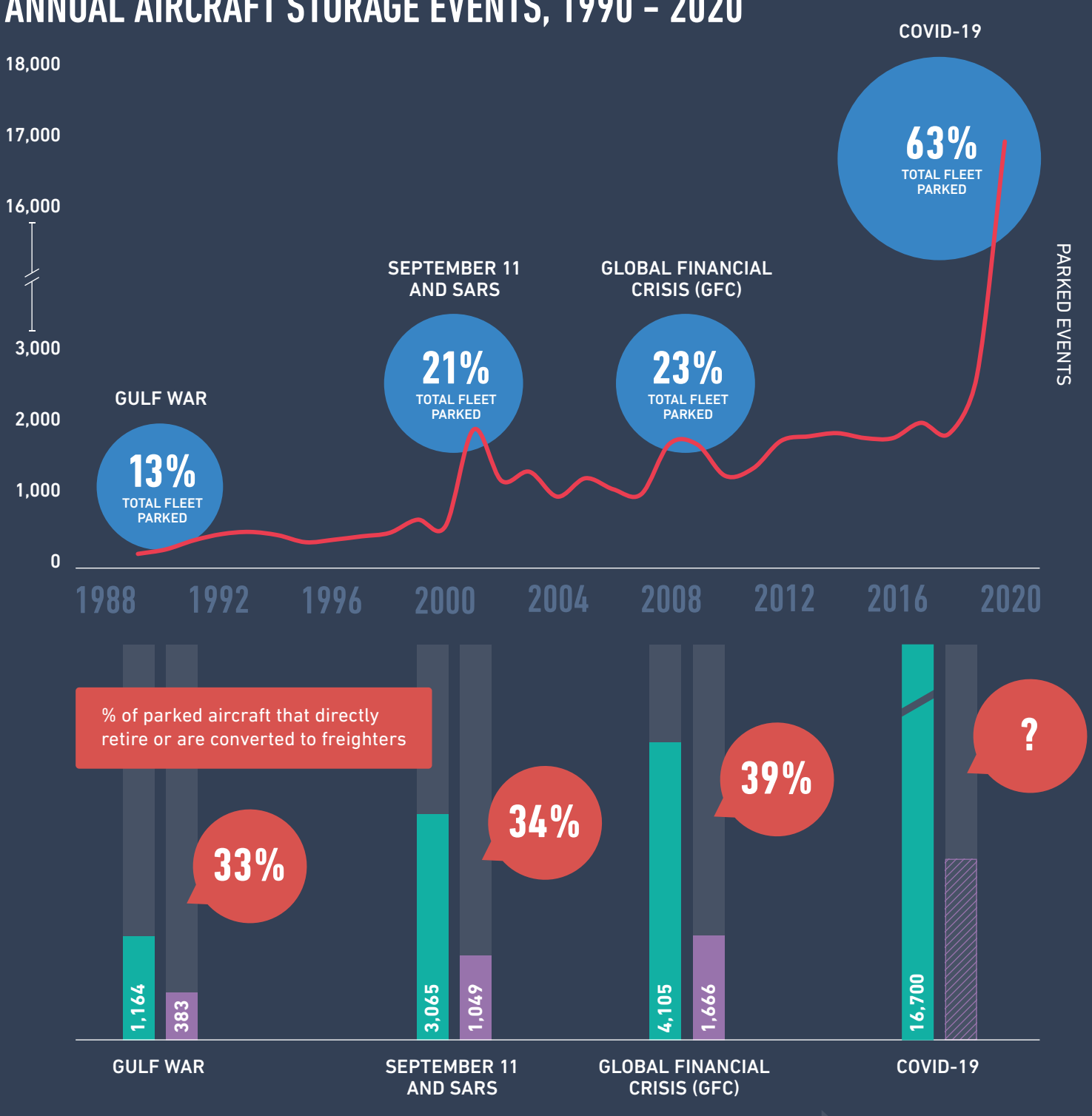
AVASCENT

CLIPPED WINGS

Suppliers' Futures Hang in the Balance of the Parked Fleet

The dramatic surge in parked aircraft has become a chilling barometer of the unprecedented challenges facing airlines and aerospace suppliers. While the grounded fleet of 17,000+ aircraft will likely ebb and flow over the coming months, how airlines ultimately decide to unravel all the cobwebs of planes on runways and taxiways around the globe will influence the size and shape of the industry for years to come.

ANNUAL AIRCRAFT STORAGE EVENTS, 1990 – 2020



An analysis of past crises over the last 30 years indicates that the share of grounded aircraft that do not return to passenger service has grown over time, with increasingly younger aircraft falling victim as a result. Should this trend continue, up to 7,000 aircraft grounded today have inevitably flown their final flight as an airliner. An exodus of this magnitude would deliver a welcome upside for some of the supply chain as it implies greater demand for new aircraft. However, it could also cause sharper near-term pain for those suppliers with heavy aftermarket exposure.

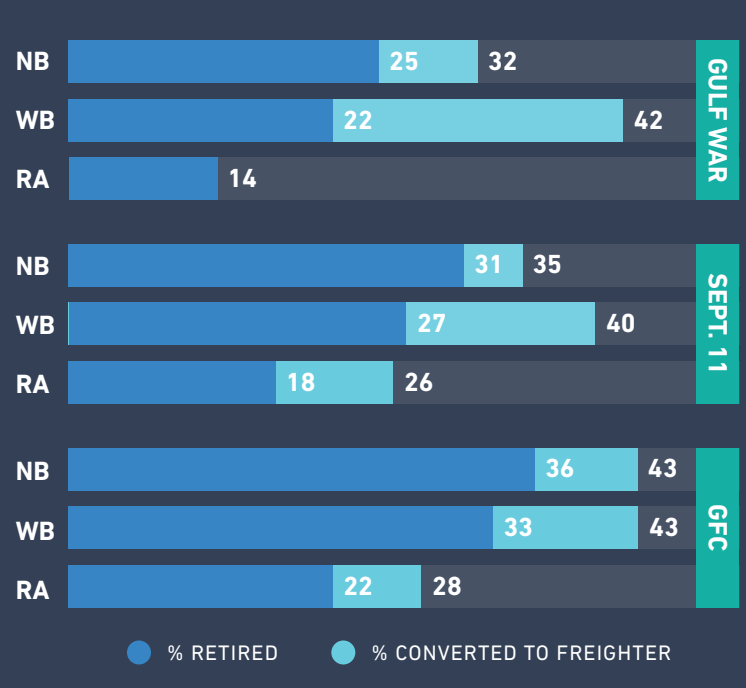
NEW AIRCRAFT PRODUCTION

Although the crisis has already reduced demand for new aircraft, a large influx of retirements would reflect airlines' willingness to right-size fleets for the long-term with new, more efficient aircraft like the B737MAX or A320neo. Yet not all new production programs would necessarily benefit; nearly 10% of prior crisis-parked fleets were converted into freighter aircraft. This phenomenon could increase in 2020 to offset belly cargo capacity cuts coming from the passenger fleet, stifling current in-production and notional future freighter programs' long-term outlooks (e.g., B767F, B777F, A330neo Freighter).

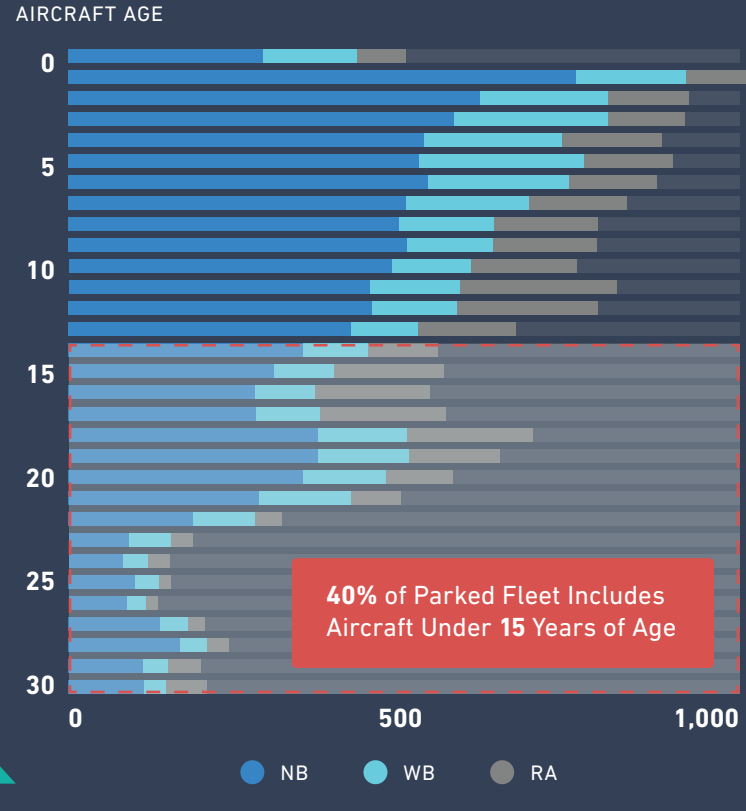
AFTERMARKET

Should more than 30% of the parked fleet retire, aftermarket-dependent companies could experience a sharp decline in near-term activity. For one, more lucrative late-life shop visits would fall precipitously, especially if legacy workhorse B737 or A320ceo fleets do not return. In addition, excess inventory of used serviceable material (USM) would stifle near-term demand for OE and 3rd party spare and repair solutions until airlines' parts inventories are cleared.

SHARE OF PARKED AIRCRAFT THAT RETIRE OR CONVERT

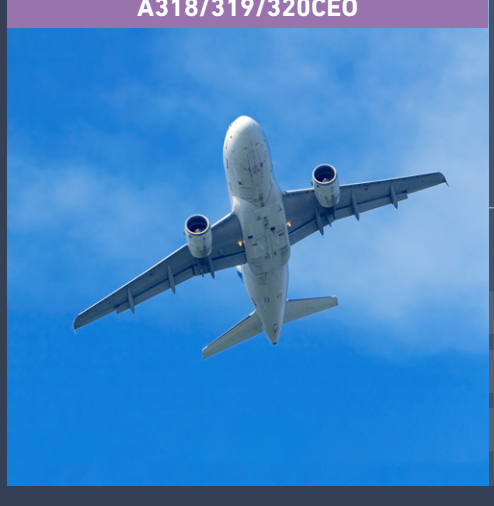


NUMBER OF PARKED AIRCRAFT, BY AIRCRAFT AGE (AS OF APRIL 30, 2020)



EXAMPLE FLEETS WITH NOTABLE RETIREMENT RISK

A318/319/320CEO



5,533 TOTAL FLEET

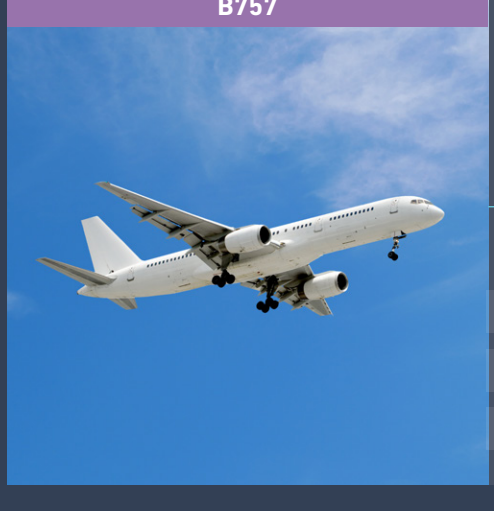
73% SHARE OF FLEET IN STORAGE

27% SHARE OF FLEET AGE 15+

NOTABLE OPERATORS WITH LARGE HIGH-RISK FLEETS

DELTA	82
UNITED	75
AIR CANADA	39

B757



386 TOTAL FLEET

83% SHARE OF FLEET IN STORAGE

100% SHARE OF FLEET AGE 15+

NOTABLE OPERATORS WITH LARGE HIGH-RISK FLEETS

DELTA	127
UNITED	72*
American Airlines	37*

B767

449 TOTAL FLEET

80% SHARE OF FLEET IN STORAGE

84% SHARE OF FLEET AGE 15+

NOTABLE OPERATORS WITH LARGE HIGH-RISK FLEETS

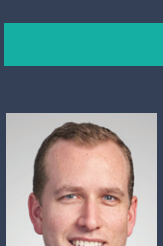
DELTA	78*
UNITED	54
AIR CANADA	25

*Announced as part of future retirement plan; acceleration is likely or already underway. **Source:** Cirium as of May 10, 2020, Avascent Analysis*

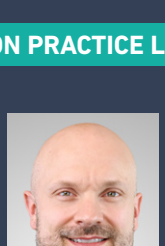
FINAL THOUGHTS

Historical patterns offer a useful, albeit sobering backdrop for what may lie ahead, though it will only tell us so much given the unique severity of this crisis. In this uncertain demand environment, airlines must delicately balance thousands of dollars of parking and maintenance fees against the potential value of each aircraft's repurposed components and systems. Even small deviations in retirement trends could swing the industry impact, thereby necessitating careful analysis of potential mitigation tactics – including near- and long-term diversification options, supply chain repositioning, and other proactive strategic realignments.

AVASCENT CIVIL AVIATION PRACTICE LEADERS



Jay Carmel is a Principal at Avascent and delivers strategic guidance to suppliers and investors active in multiple aviation end-markets. In addition to his experience serving companies across traditional supply chain domains, Mr. Carmel has expertise in disruptive technology areas like aircraft electrification, autonomy, and advanced manufacturing. For more information, contact: *jcarmel@avascent.com*.



Chris Higgins has over 17 years of aerospace industry experience. Prior to re-joining Avascent where he began his career, Chris served as the senior aerospace and defense analyst on the Morningstar equity research team. He also previously worked for Airbus, which included M&A, corporate strategy, finance, and investor relations roles. For more information, contact: *chiggins@avascent.com*.