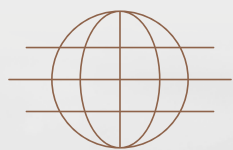




**10 YEAR
BUSINESS
AVIATION**

**MARKET
OUTLOOK**

2016 - 2025



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FOREWORD

In our inaugural forecast last year, we highlighted the unpredictability of our industry since 2008. The impact of world events in the past 12 months has certainly continued this trend.

Our 2016 forecast shows a reduction of both units and revenue over the next 10 years compared to last year's forecast, although we do believe solidity is returning in some areas. Jetcraft's revenue and number of unit transactions over the past 18 months, as one example, is the company's best since its formation over 50 years ago.

While the U.S. is, without doubt, driving much of this performance, we see activity in regions where many have seen little business potential, particularly throughout Asia.

To skeptics, we may seem to be perpetually turning a corner in terms of the recovery. However, the danger is not so much the slower-than-hoped-for recovery itself, but rather the possibility of creating a self-fulfilling prophecy with an inevitable downturn. So while we predict a continued settling of the market into a more regular, muted pattern, we remain positive for the future. Accordingly, and as always, we hope you find the forecast useful.



A stylized, handwritten signature in black ink, consisting of a large 'J' followed by a series of loops and a final vertical stroke.

Jahid Fazal-Karim – Chairman of the Board, Jetcraft

EXECUTIVE SUMMARY

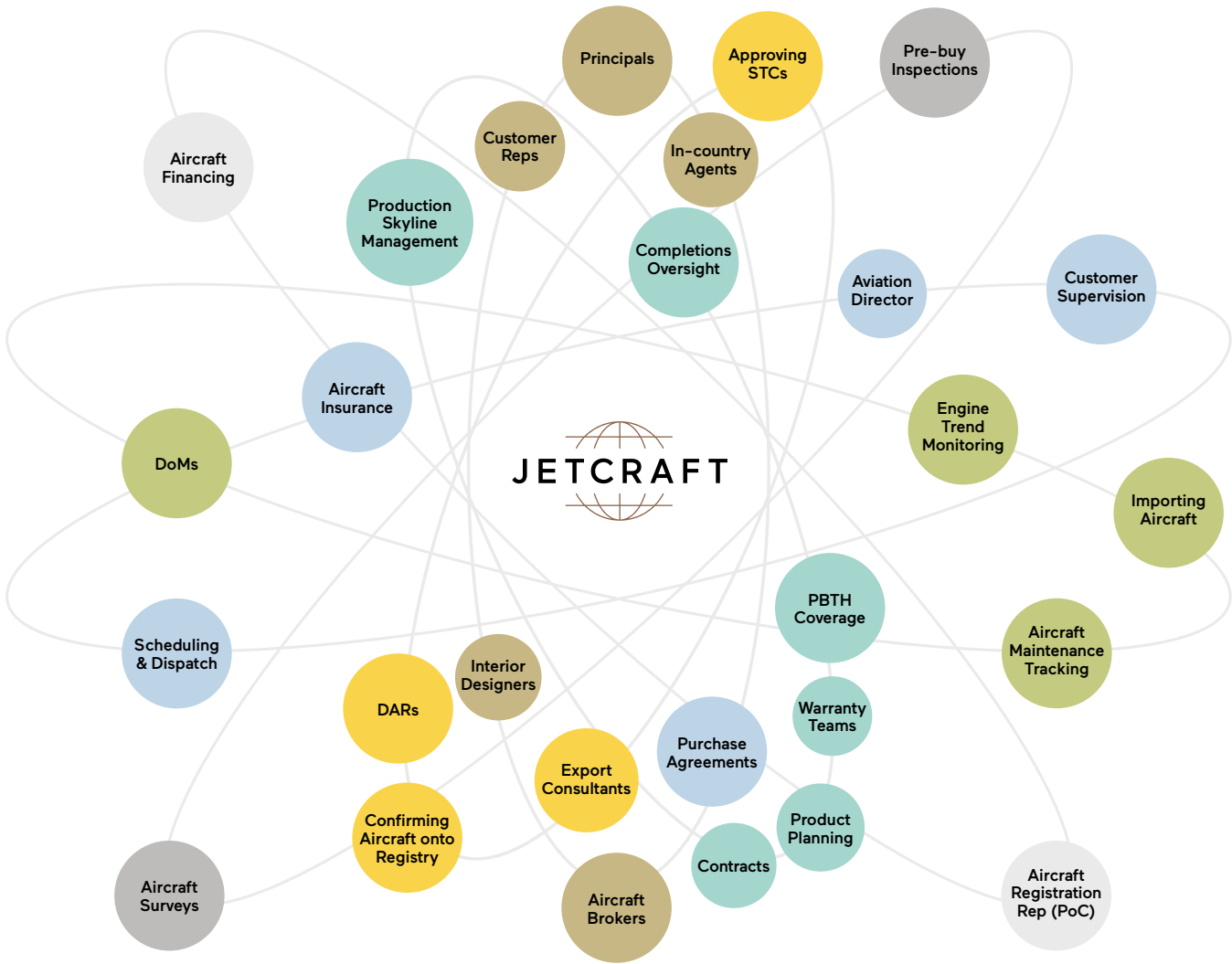
- Jetcraft's 2016 market forecast calls for 7,879 unit deliveries, representing \$248 billion in revenues (based on 2015 pricing), to be realized over the next 10 years.
- At 30.6%, Gulfstream will secure the highest revenue market share over the forecast period – largely as a result of introducing its expanded family of large aircraft. Bombardier will secure second spot with a 28% market share.
- Cessna will regain market leadership from Bombardier in unit deliveries, securing 24.4% of all new aircraft deliveries over the forecast horizon. Bombardier will be second with a 21.8% market share.
- Pratt & Whitney Canada will supplant Rolls-Royce as the market share leader among engine OEMs for business aviation. We forecast a 30% revenue market share for P&WC, aided by the entry into service of the new Gulfstream large aircraft family. Rolls-Royce will drop to second position with a 25% revenue market share.
- Honeywell will be the dominant player among avionics OEMs, securing a 45% revenue market share over the forecast period. Rockwell Collins will be second with a 37% revenue market share. Garmin will extend its incursion into the widebody segments by adding the Hemisphere program to its line-up.
- We believe that the growth of unit deliveries will be hampered in the short-term as the contribution of the emerging market economies wanes because of lower commodity prices and less favorable U.S. dollar exchange rates.
- We are expecting the launch of multiple models over the forecast period introducing innovative and transformative technologies. We also see aircraft OEMs focusing their R&D investment dollars in models at the higher-end segments.
- In terms of the pre-owned market, while the industry is below its 13% benchmark level (inventory as a percentage of in-service fleet), there is little evidence of an increase in residual values for 5-year old aircraft. We speculate that this is because of the fact that these aircraft were initially procured with discounts and that the gap between the current pre-owned transaction prices and the initial list pricing has been subsequently reduced to its current 55% residual value level.
- Our forecast model results reflect the following trends over the 10-year forecast period: a slowdown in wealth creation; an outflow of ultra high net worth individuals (UHNWIs) from emerging market economies; and oil prices pegged at under \$50 a barrel. Offsetting these headwinds is a belief that the U.S. economy still has ample room to grow and that the current trend of companies buying back shares is about to wind down and shift to robust capital expenditure investment, supporting a better climate for aircraft sales.
- Finally, in terms of the geopolitical backdrop, unpredictable issues such as terrorism and the migrant crisis remain threats that could derail projections over the current forecast period.




THE JETCRAFT PERSPECTIVE



THE JETCRAFT PERSPECTIVE





In last year's edition, this Jetcraft Perspective graphic introduced the unique perspective gained from our position in the market between a traditional aircraft broker and the OEMs.

Additionally, in this year's edition, we draw attention to the importance of, not just a position functionally within the industry, but a position located in every region. As global factors continue to play a more direct part in the business aviation market, Jetcraft's 20+ offices worldwide permit us a 'finger-on-the-pulse' insight from each region.

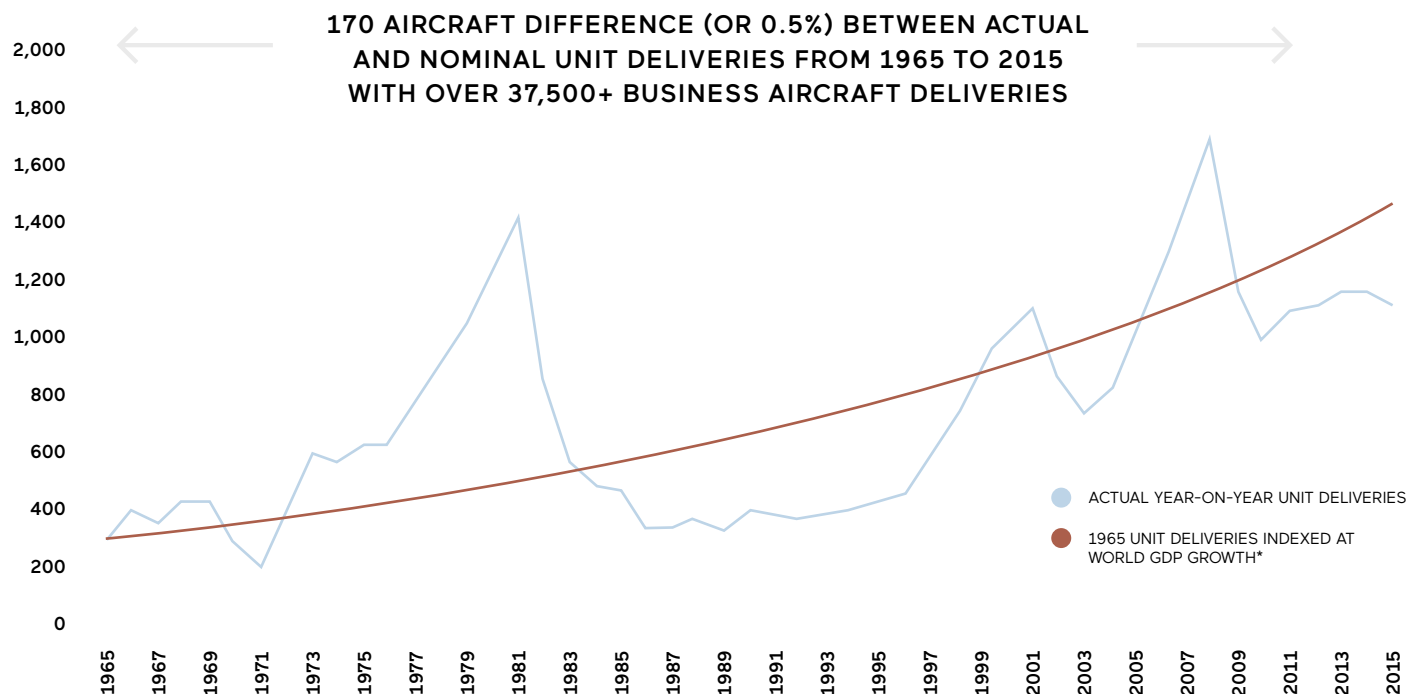
This has allowed us to, alongside the quantitative forecast, qualitatively test the assumptions and impacts of these global factors on the ground. The local insight we garnered from our offices around the world was immeasurable and is present throughout this forecast commentary.



**MAJOR FACTORS AFFECTING
THE MARKET OUTLOOK**



BUSINESS AVIATION TRACKS WORLD ECONOMIC GROWTH



In order to place our forecast in a global economic perspective, we looked at actual business aircraft unit deliveries (turboprops included) over an extended period of time. We compared this to the number of units generated by indexing unit deliveries by World GDP growth over the same period.

The difference between the two variables (in terms of the cumulative number) was minimal – less than 0.5% (or 170 units).

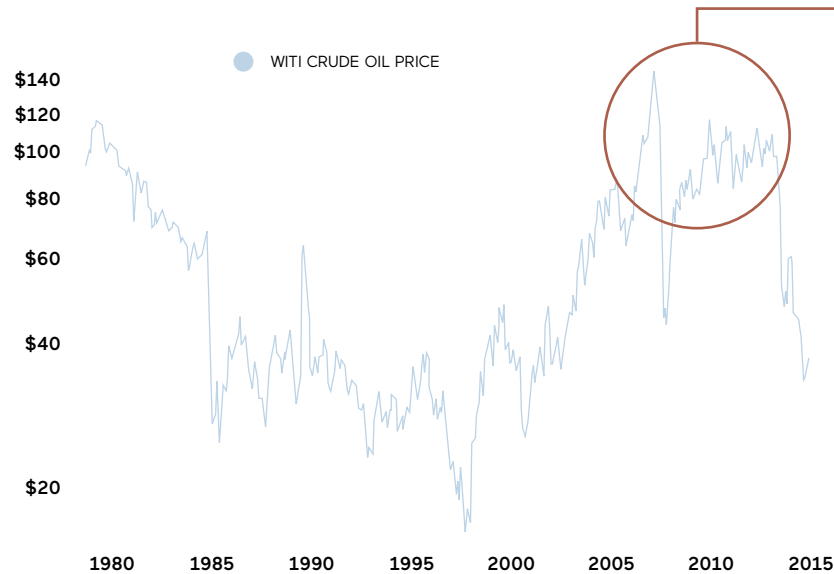
This not only validates that the current business aviation market is exactly where it's supposed to be, in terms of unit deliveries (as actual and

nominal unit deliveries essentially return towards equilibrium when excesses are absorbed), but more encouragingly points to the continuing recovery run of our forecast as we see actual unit deliveries increasing.

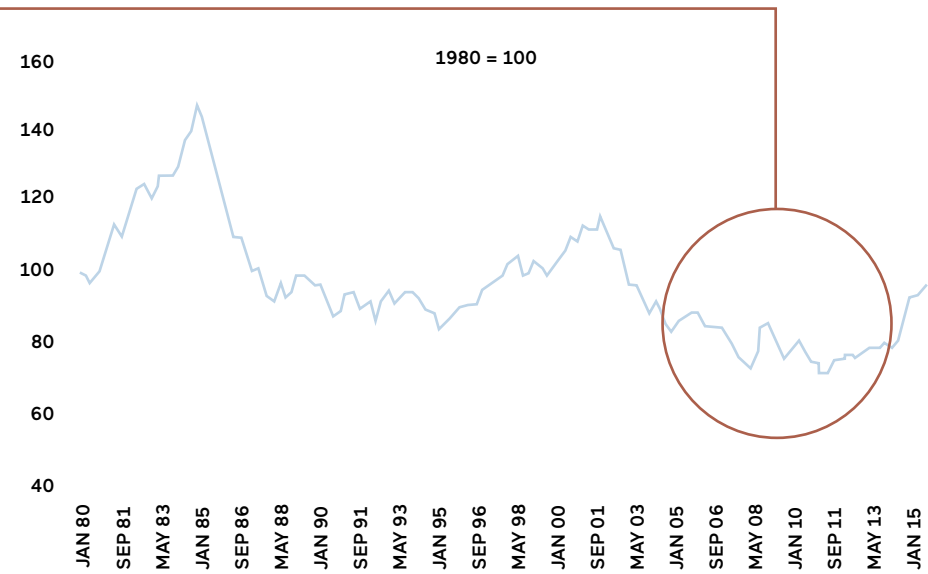
*Note: World GDP growth derived as a composite.

STRONG OIL PRICES AND FAVORABLE EXCHANGE RATES ARE CRITICAL TO STRONG DEMAND FROM INTERNATIONAL MARKETS

WTI OIL PRICE PER BARREL – INFLATION ADJUSTED

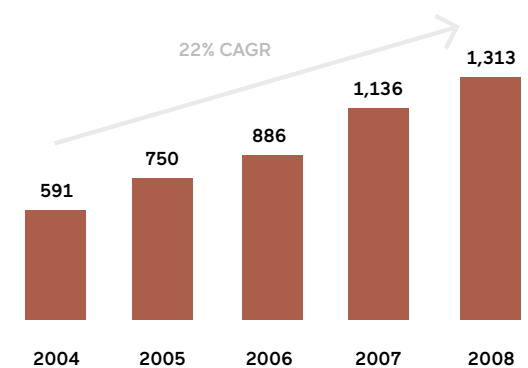


TRADE-WEIGHTED U.S. DOLLAR INDEX: MAJOR CURRENCIES



Historically, demand for new business jets outside the U.S. market has been approximately 30% – with the majority of those aircraft going to Europe. Over the last 10 years, the demand ratio of North American versus international markets (deemed all non-U.S./Canada) underwent major change before reverting to pre-2007 dynamics. In 2007–2008, international market share surpassed 50%. Two factors contributed to this trend: the high price of commodities such as oil and gas, and favorable exchange rates in several key nations versus the U.S. dollar – the primary beneficiaries being the

BRICS nations. These two factors resulted in significant growth of business aviation unit deliveries as global economic integration of these markets led to unprecedented wealth creation in these same “emerging” markets. Since 2008, and in the past 12 months, as commodity prices reversed, these markets and their orders/deliveries have slowed, as compared to North America. A return to 70% share may occur if these conditions remain in place – highlighting the falling contribution of emerging markets to global demand.



PLACING THE CURRENT BUSINESS CYCLE IN CONTEXT OF TWO PREVIOUS CYCLES IN BUSINESS AVIATION

BUSINESS AIRCRAFT UNIT DELIVERIES (1995-2025)

(Units, calendar year)

DOT-COM BUSINESS CYCLE

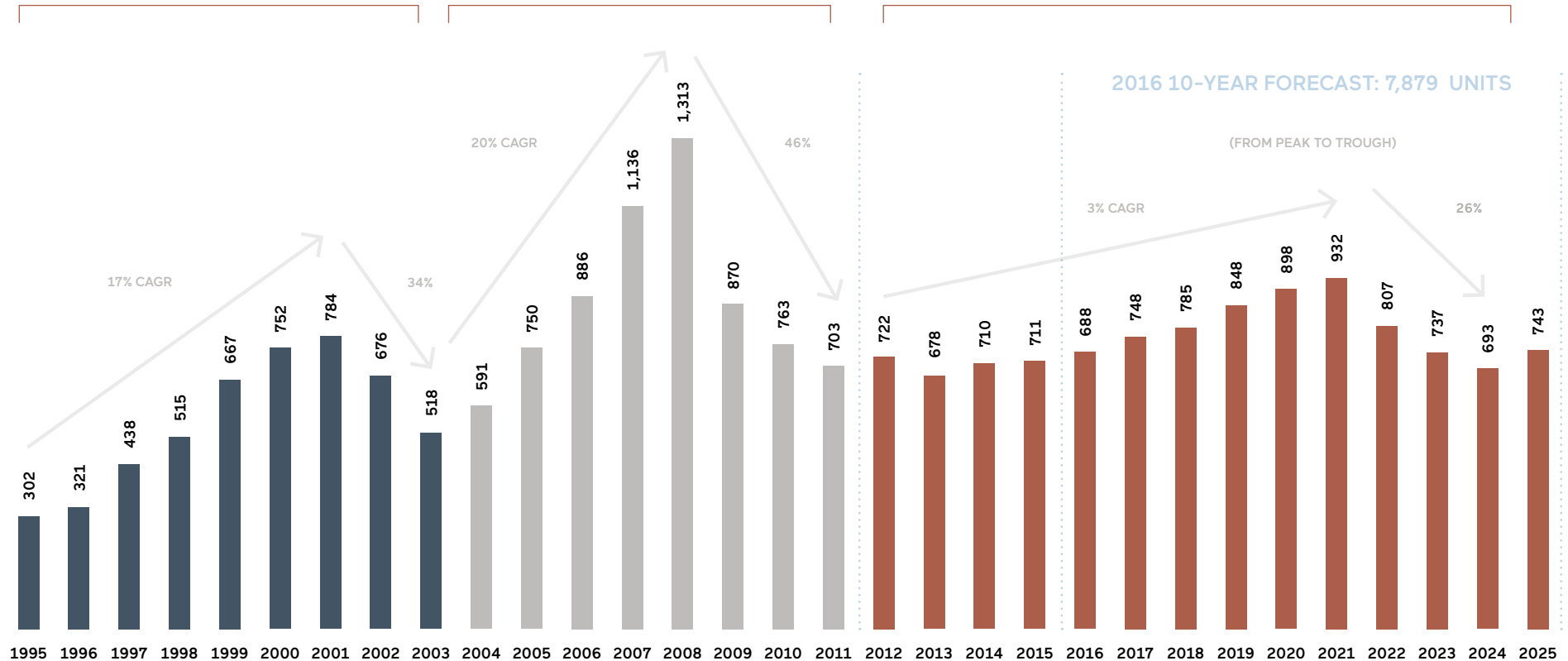
Exponential year-on-year growth (CAGR 17% through run-up) with sharp downturn. 7-year recovery run realizing downturn trough on 2nd year.

EMERGING MARKETS BUSINESS CYCLE

Exponential year-on-year growth (CAGR 20% through run-up) with sharp downturn. 6-year recovery run realizing downturn trough on 3rd year.

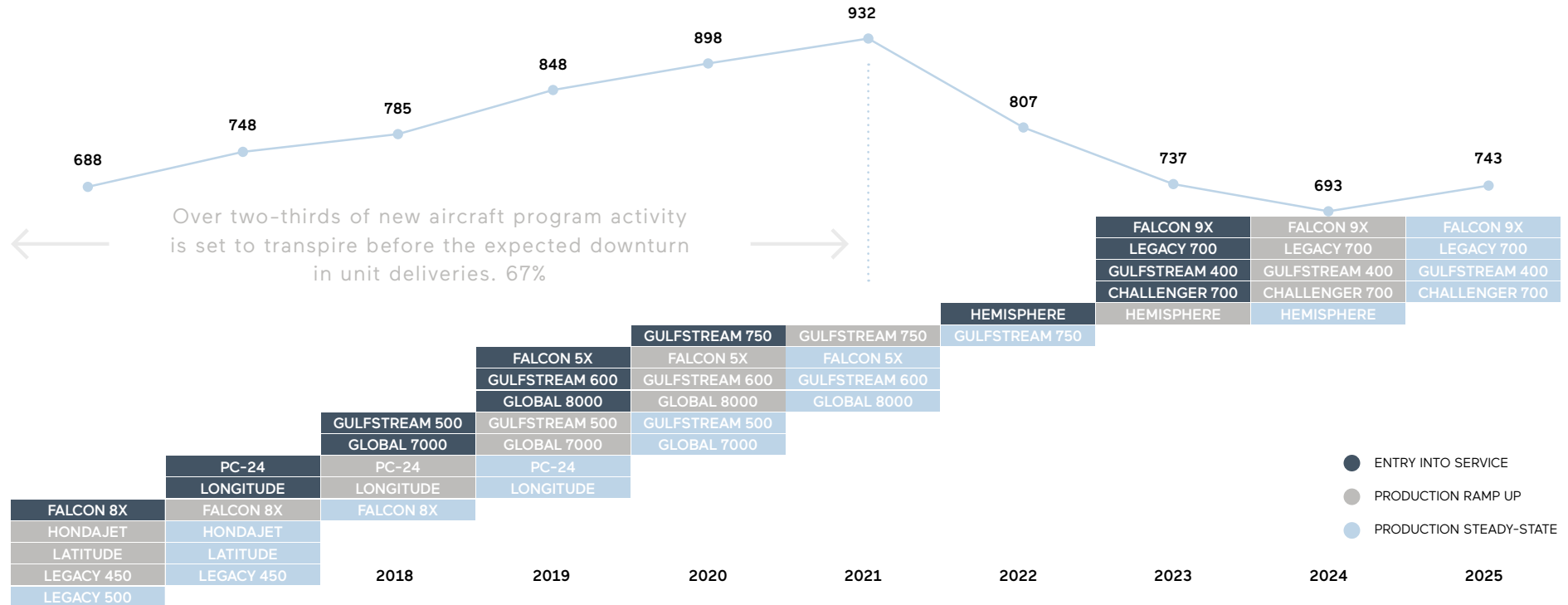
BUSINESS CYCLE IN AFTERMATH OF 2008 RECESSION

Flatter growth will be extended over longer recovery run. Downturn less drastic and forecasted to hit trough after 3rd year. Business cycle characterized as muted recovery with softer downturn.



PRODUCT INNOVATION WILL BE KEY IN PUSHING UP NEW AIRCRAFT DELIVERIES OVER THE NEXT 5 YEARS

NEW AIRCRAFT PROGRAM PRODUCTION ACTIVITY (2016 - 2025)



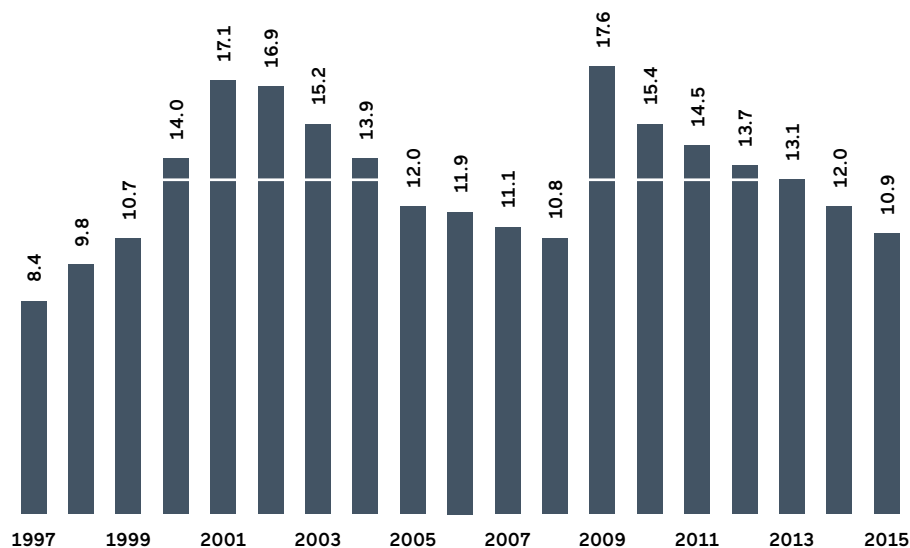
Continual product innovation has been a major strategy in stimulating market demand for OEMs. For example, at the end of the 90s, Ultra Long Range models, like the Global Express and the GV, significantly expanded the size of the market as customers were drawn to their Trans-Pacific

capability. Similarly, in the mid 2000s, the introduction of Very Light Jets, such as the Mustang and the Phenom 100, expanded the size of the market by making business jet travel more accessible. These were discrete jumps in the technology resulting in incremental demand.

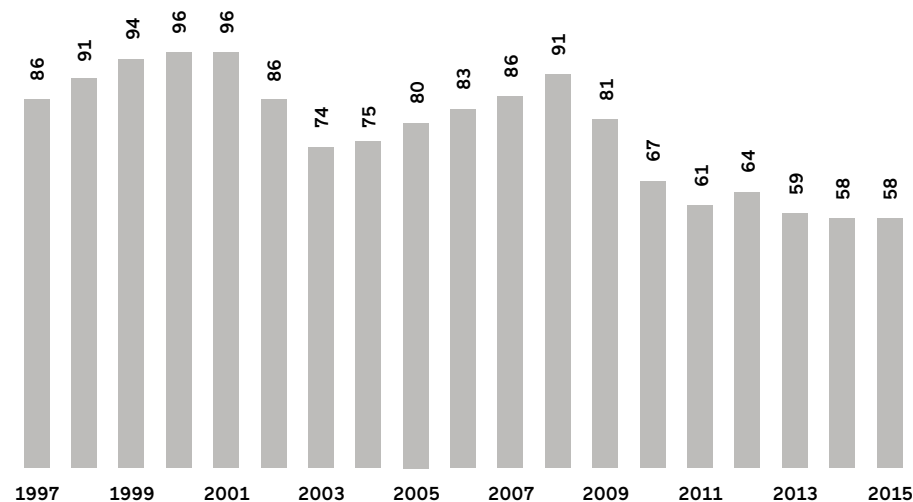
The planned introduction of many new aircraft over the next 5 years will again stimulate replacement demand by introducing new technology and aircraft mission capabilities. These new aircraft models will be key in sustaining growth until at least 2021.

USED AIRCRAFT INVENTORY SHOWS A POSITIVE TREND BUT RESIDUAL VALUES REMAIN LOWER

USED AIRCRAFT INVENTORY AS % OF FLEET



5-YEAR RESIDUAL VALUE AS % OF ORIGINAL B&CA PRICE



Simple supply and demand economics dictate that the number of pre-owned aircraft for sale has a significant impact on prices. Typically, when inventory is higher than the historical average level (13%), prices will fall. When inventory drops below 13% – with a lag of approximately two quarters – prices will rise.

Tracking residual values of 5-year-old aircraft is key in predicting demand for new aircraft as approximately 50% of the fleet is replaced at the end of the warranty – the typical holding (ownership) period for North American owners.

A low residual value at the time of the intended sale directly influences the probability of an aircraft replacement (pre-owned for new). Owners will typically postpone replacement of their aircraft if the residual value environment is not favorable.

Yet with inventory levels less than 13%, values are not discernibly rising. This has caused subsequent lags in purchasing of new aircraft and therefore less growth in the market. One possible explanation for this could be that 5 years ago, OEMs had extended larger discounts to customers in an attempt to jump-start the post-recession market.

As a result, the wider spread between current transaction prices for pre-owned aircraft and their list prices from 5 or more years ago has impacted current residual values. Removing this factor, in theory, the actual (current) residual value of a 5-year-old aircraft is probably between 65% and 70%, whereas 55% is the actual approximate figure. One natural consequence of this may be that the sellers who paid higher prices 3 to 4 years ago are reluctant to offer their aircraft for sale, further slowing the market.



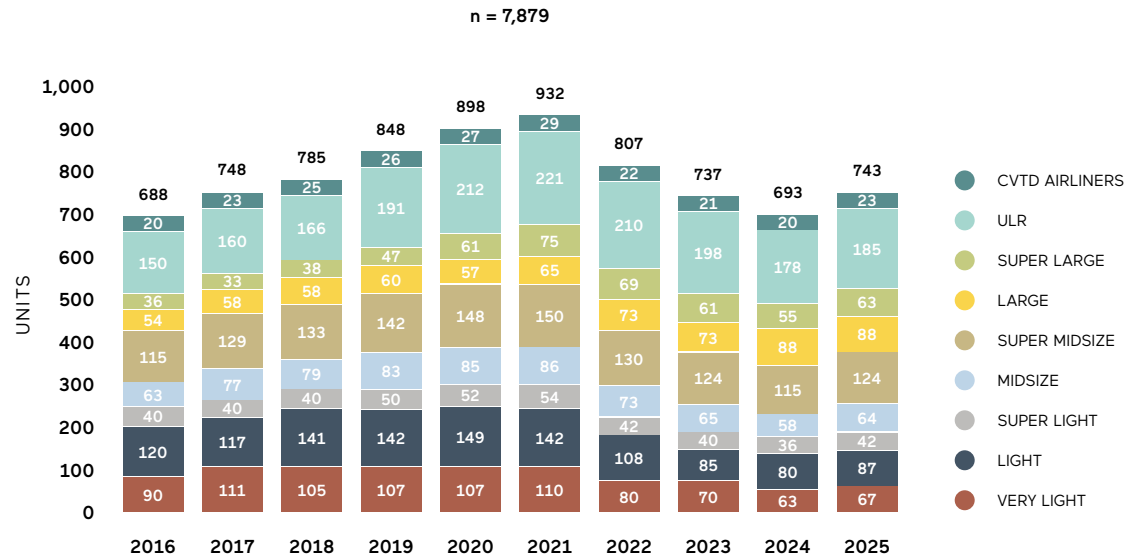


BUSINESS AVIATION FORECAST FOR 2016 - 2025



UNIT DELIVERIES AND REVENUES OVER FORECAST PERIOD BY SEGMENT

BUSINESS AVIATION UNIT DELIVERIES PER SEGMENT (2016 - 2025)



FORECAST SUMMARY

UNITS TOTAL n = 7,879

REVENUES TOTAL n = \$248B

LIGHT JETS
VLJ
Light
Super Light



=



MEDIUM JETS
Mid
Super Mid
Large



=



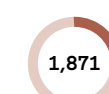
LARGE JETS
Super Large
ULR
CA



=



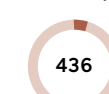
LARGEST SEGMENT (UNITS): ULR
TOTAL n = 7,879



LARGEST SEGMENT (REV\$): ULR
TOTAL n = \$248B



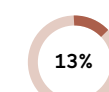
SMALLEST SEGMENT (UNITS): SUPER LIGHT
TOTAL n = 7,879



SMALLEST SEGMENT (REV\$): VLJ
TOTAL n = \$248B



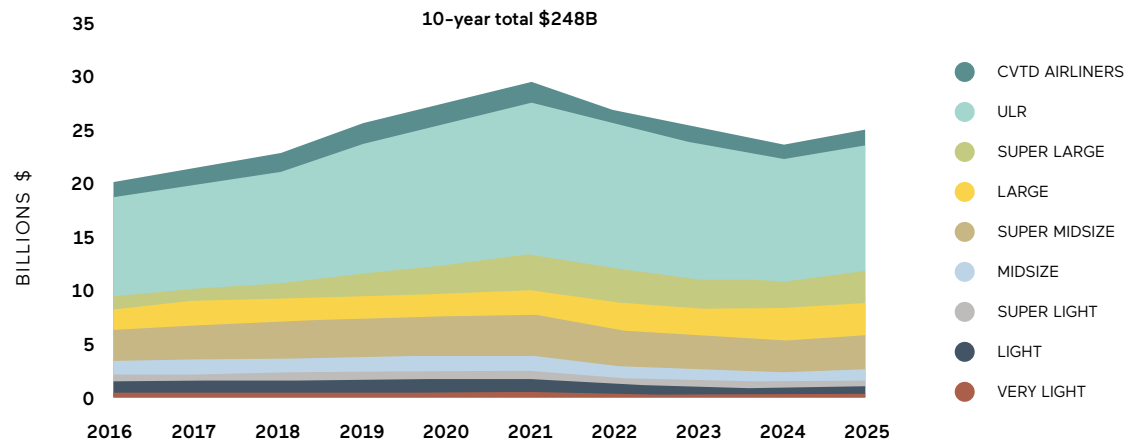
% OF NARROWBODY REVENUES COMPARED TO TOTAL SEGMENT REVENUES



% OF WIDEBODY REVENUES COMPARED TO TOTAL SEGMENT REVENUES



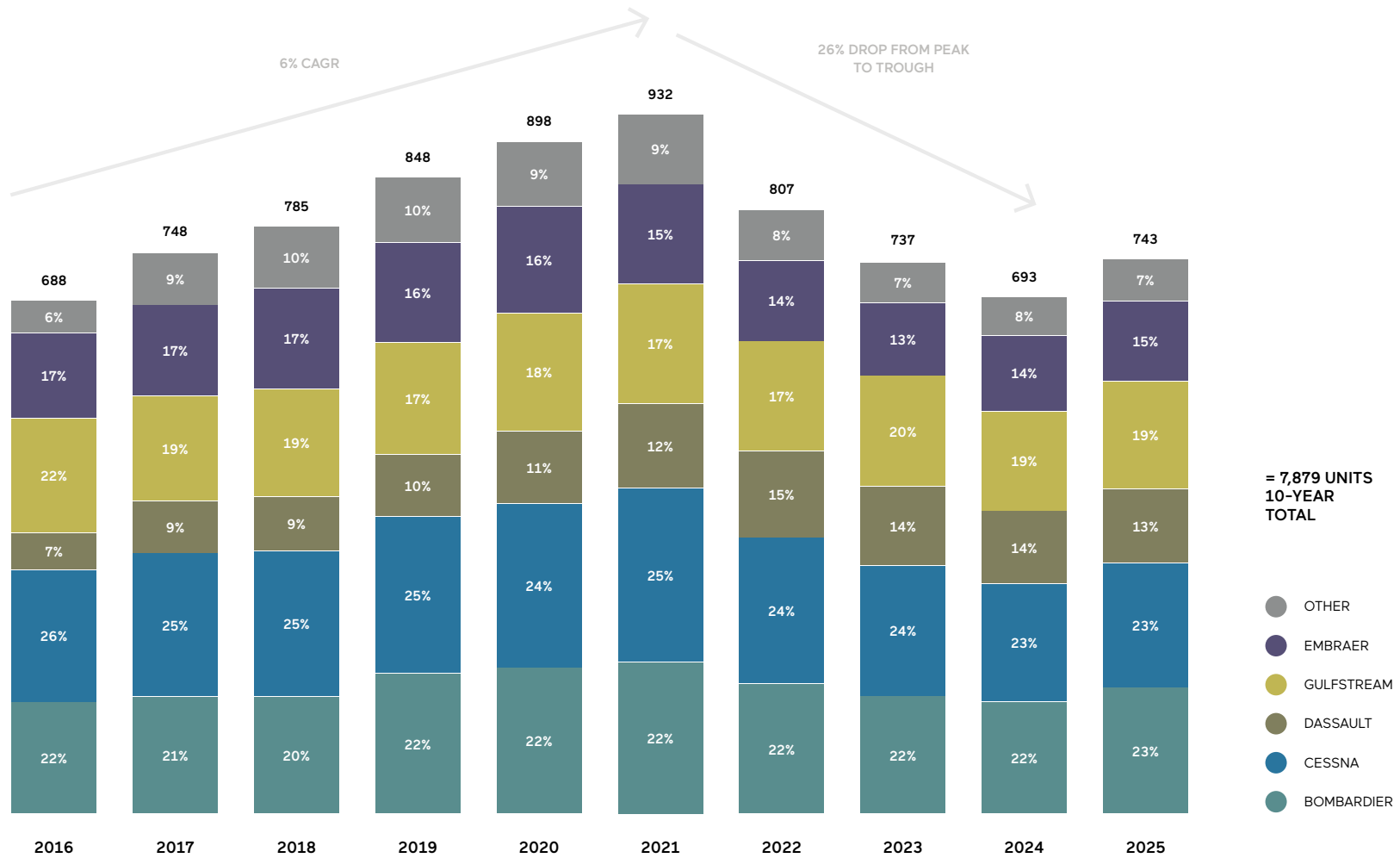
BUSINESS AVIATION REVENUES PER SEGMENT (2016 - 2025)



PROJECTED OEM MARKET SHARE (UNIT DELIVERIES)

EVOLUTION OF DELIVERY MARKET SHARE OVER FORECAST PERIOD (UNITS)

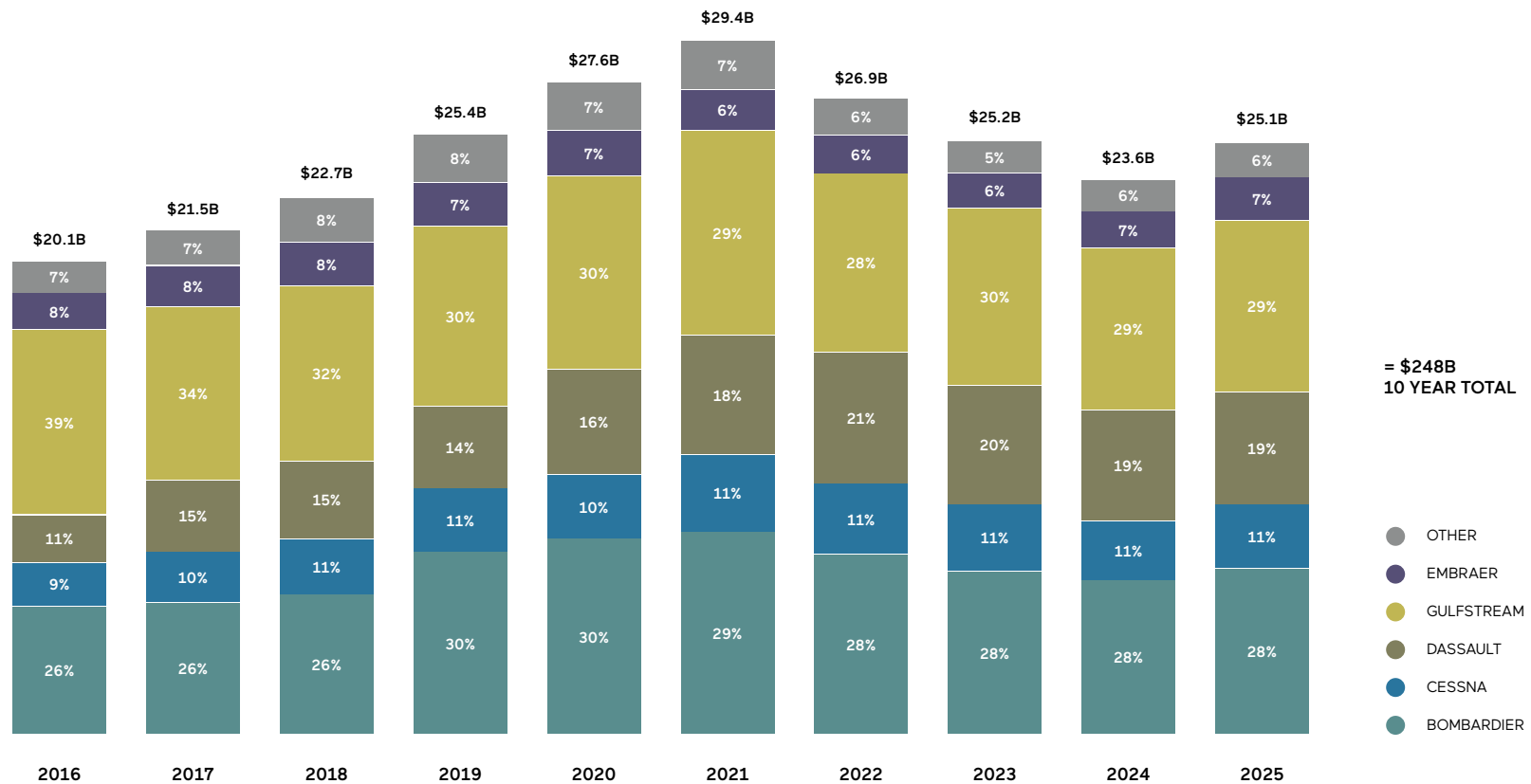
(2016 - 2025 calendar year)



PROJECTED OEM MARKET SHARE (REVENUES/BILLINGS)

EVOLUTION OF DELIVERY MARKET SHARE OVER FORECAST PERIOD (REVENUE/BILLINGS)

(2016 – 2025 calendar year)







SEGMENT ANALYSIS



BUSINESS AVIATION OEM PRODUCT LINEUP

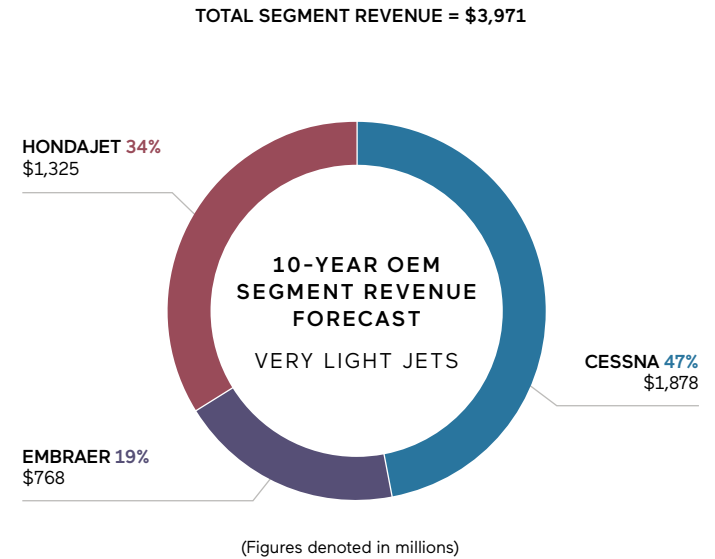
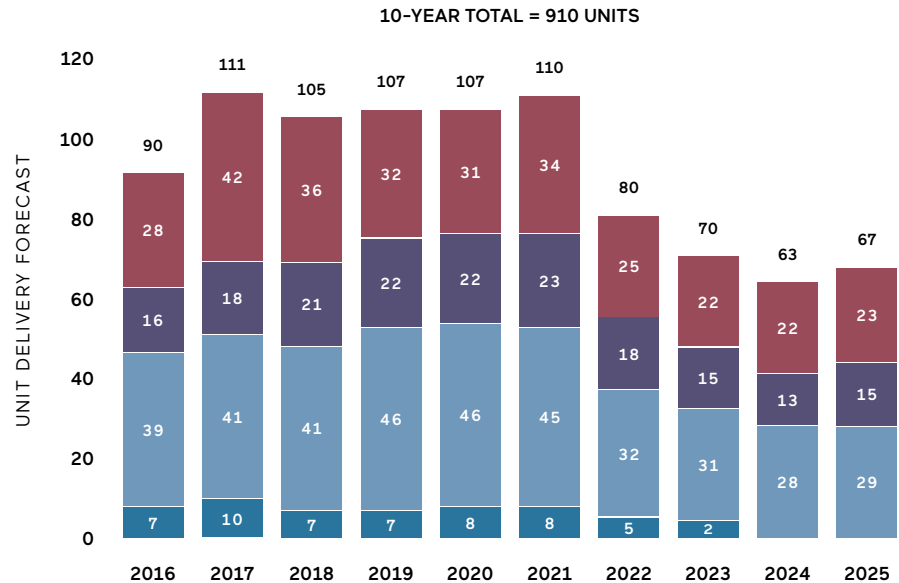
	SMALL			MEDIUM			LARGE		
	VERY LIGHT	LIGHT	SUPER LIGHT	MIDSIZE	SUPER MIDSIZE	LARGE	SUPER LARGE	ULTRA LONG RANGE	CONVERTED AIRLINERS
BOMBARDIER		L70 L70XR 2021 ¹	L75 L75XR 2021 ¹		CL350	CL650 CL700 2023 ¹	G5000	G6000 G7000 2018 ¹ G8000 2019 ¹	C-SERIES BJ 2021 ¹
CESSNA	M2 M2+ 2023 ¹ MUSTANG	CJ3+ CJ4/+ 2018 ¹	XLS+ NEW XLS+ 2019 ¹	SOVEREIGN+ LATITUDE	NEW CITATION X LONGITUDE 2017 ¹	HEMISPHERE 2022 ¹			
DASSAULT					F2000S	F2000LXS	F900LX F5X 2020 ¹	F7X F8X F9X 2023 ¹	
GULFSTREAM				G150	G280	G400NG 2023 ¹	G450 G500 2018 ¹	G550 G650/ER G600 2019 ¹ G750 2020 ¹	
EMBRAER	PHENOM 100E PHENOM 100E+ 2023 ¹	PHENOM 300 PHENOM 300E 2018 ¹		LEGACY 450	LEGACY 500	LEGACY 650 LEGACY 700 2023 ¹			LINEAGE 1000
OTHER	HONDAJET	PILATUS PC-24 2017 ¹							BBJ I/II/III ACJ SUKHOI SBJ 2017 ¹

¹ Announced or otherwise anticipated entry into service. Note: Forecast does not include Eclipse 550 or Syberjet SJ30

This segment analysis represents the main aircraft types transacted by Jetcraft. Any speculation regarding new aircraft development programs that have not been announced by an OEM is based solely on our insight and analysis and not derived from privileged information.



CATEGORY FORECAST: VERY LIGHT JETS



CATEGORY CHARACTERISTICS

PRICE: \$3.3m - \$4.5m RANGE: 970 - 1,521 nautical miles

SEGMENT COMMENTARY

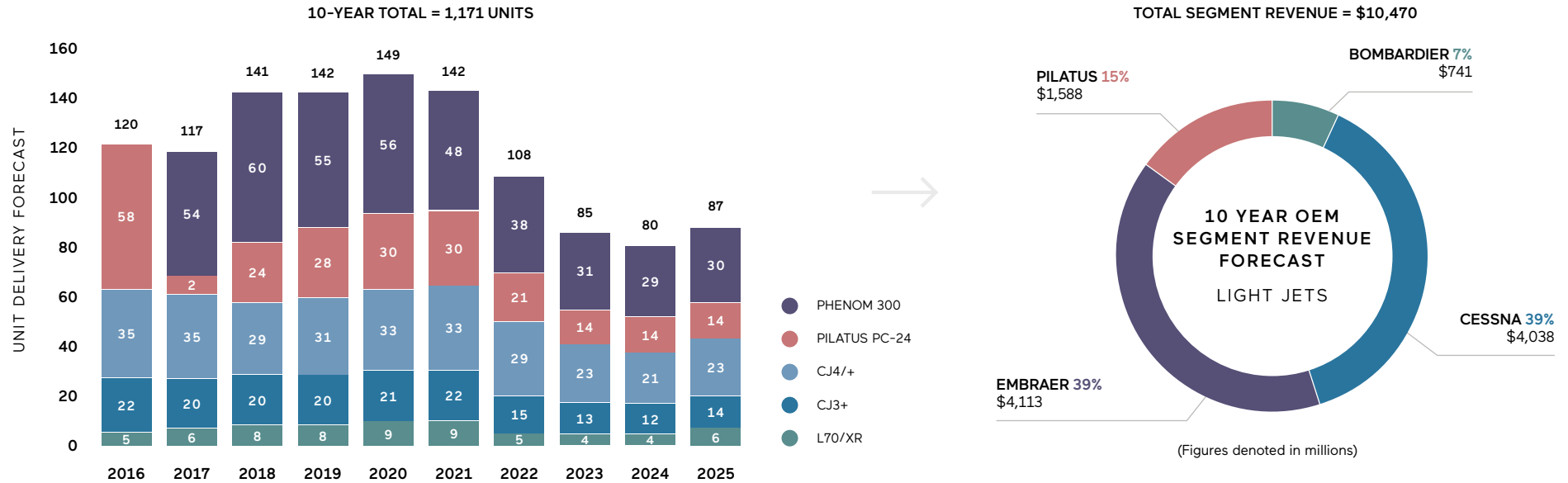
As a new entrant, the HondaJet will provide an incremental contribution to deliveries in this segment, and with its delays in securing certification, should be able to quickly deliver a relatively high number of units into the market as deliveries to customers have backed-up.

However Cessna, with its dual offerings, will maintain segment leadership over the forecast period. One area of concern for Cessna may be the long-term market viability of the Mustang. Given the rise of the M2 (at the expense of the Mustang), the Wichita-based manufacturer may be forced to question the Mustang's long-term production.

Embraer, with the Phenom 100 finally exhausting its fractional backlog and the heady days of triple-digit deliveries now passed, will place third in this category.

One note for this segment, and notwithstanding the minor technological advances posed by the HondaJet, there is likely to be little innovation introduced over the course of the forecast period as Tier 1 OEMs' program development priorities revolve around higher segment offerings.

CATEGORY FORECAST: LIGHT JETS



CATEGORY CHARACTERISTICS

PRICE: \$7.9m – \$11.3m RANGE: 1,702 – 2,192 nautical miles

SEGMENT COMMENTARY

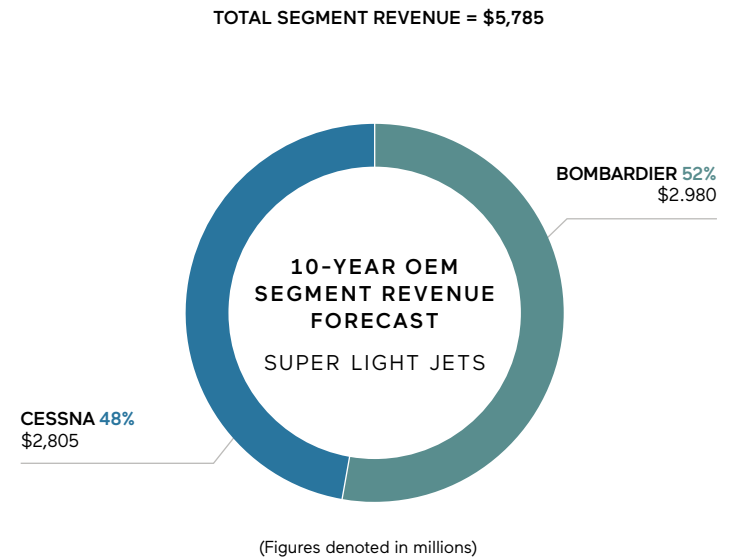
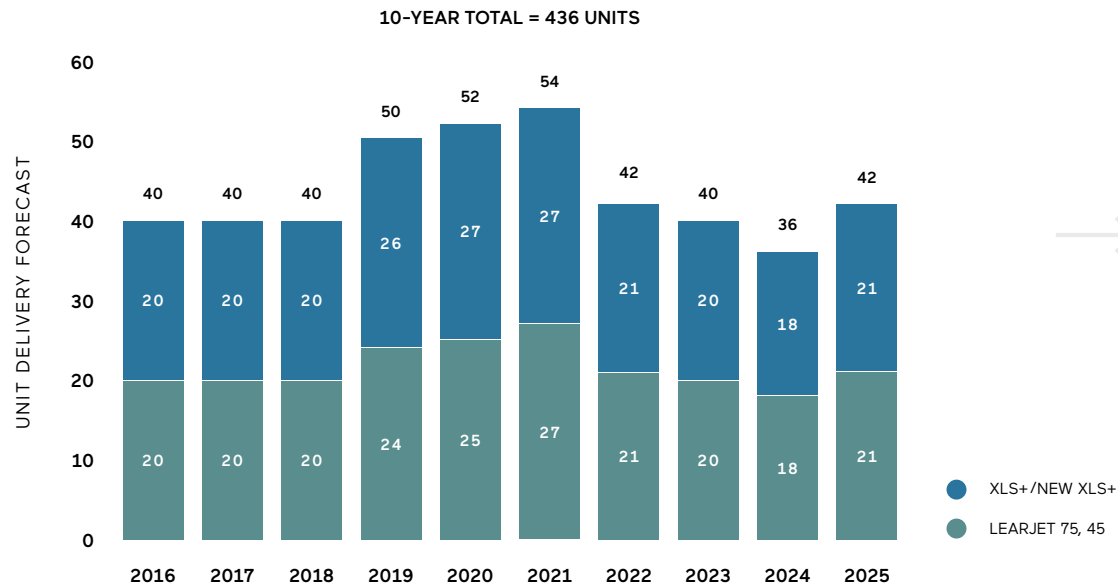
Embraer is expected to be the segment leader – albeit by a slight margin – eclipsing Cessna over the forecast period. Both Embraer and Cessna have built their respective Light Jet market share around the historical customer preferences of maximum payload in this segment.

However, new entrant Pilatus presents a potentially new dynamic that may attract nontraditional customers to this segment. Targeting turboprop owners with the utility of a rear cargo door, quick-change configuration, and short runway performance, Pilatus would not need to rely on the traditional Light Jet installed base to gain market share. The PC-24 could also find favor in international markets, such as Africa and the Middle East, because of its short field capability. However, the Swiss manufacturer's segment strategy is far from

certain as the turboprop customer base has a high proportion of owner/operators that may balk at switching from a Rockwell Collins Pro Line 21 flight deck to a Honeywell Apex avionics suite.

Our forecast numbers for the PC-24 reflect a 2017 entry-into-service date. While the aircraft program does not introduce any new complex technology that would jeopardize the certification process, a wait-and-see approach is best employed to determine whether Pilatus can indeed attract a nontraditional customer base (turboprop owners) to the segment.

CATEGORY FORECAST: SUPER LIGHT JETS



CATEGORY CHARACTERISTICS

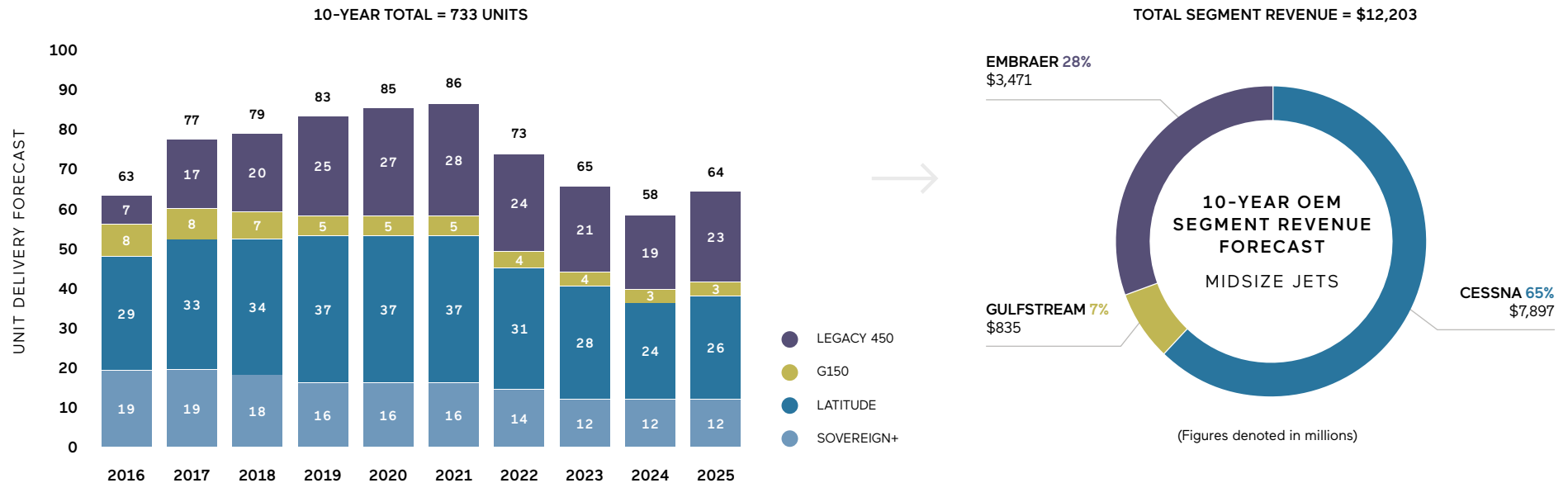
PRICE: \$12.7m – \$13.8m RANGE: 1,858 – 2,040 nautical miles

SEGMENT COMMENTARY

We expect the XLS+ to perform slightly below its historical market share in the segment now that the respective Excel and XLS customer bases have a platform to trade up to the Cessna Latitude. Moving forward, the normalizing of trade-even opportunities, coupled with the fact that the XLS+ is no longer the fractional go-to aircraft it used to be, will result in an approximately 50/50 split in the segment with a slight favor to Bombardier's Learjet 75. This is based on the probability of an extended range version being introduced in the near to moderate term.

While the Super Light segment is becoming more of a niche category with only 2 real participants – as evidenced by its dwindling numbers over the years – the discrete jump in virtually every customer segment parameter, from the Light to Midsize segment, supports the continued market existence of the models in this category. The issue is whether the segment is large enough to commit pricey development dollars against a new model.

CATEGORY FORECAST: MIDSIZE JETS



CATEGORY CHARACTERISTICS

PRICE: \$15.7m – \$17.8m RANGE: 2,292 – 3,063 nautical miles

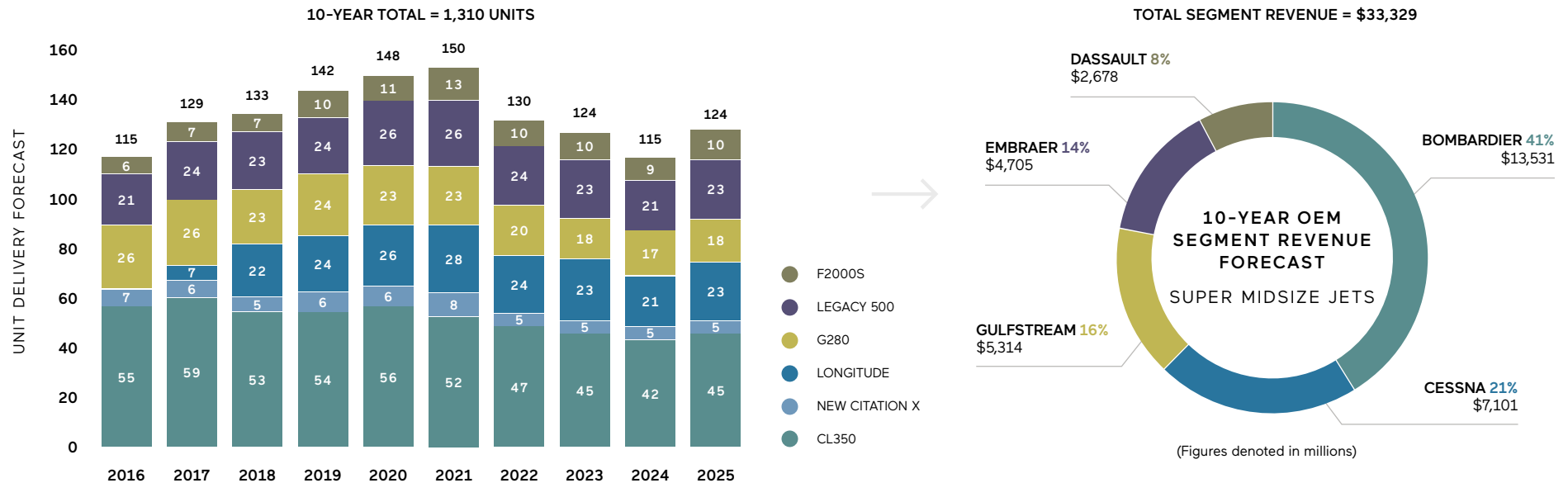
SEGMENT COMMENTARY

We expect Cessna to dominate in this segment largely on account of its segment-crowding strategy i.e. offering one model (Longitude) that addresses conventional midsize customer preferences like coast-to-coast mission capability, while the other model – the Latitude – will facilitate trade-ups from the enormous Excel, XLS and XLS+ customer installed base.

Embraer has a very capable offering in the Legacy 450 but the conspicuous absence of any hard backlog numbers may be telegraphing that the Brazilian manufacturer is struggling to gain competitive takeaways in this segment as it tries to buy market share. The task is made more difficult when the Legacy 450's seemingly low price tag of \$15.2m significantly increases when options popular in this segment are added. Still, a second place showing with a 30%+ market share over the forecast period is far from disappointing.

On September 28, 2016 Gulfstream confirmed that it will cease production of the G150. The effect on the overall forecast is negligible as we believe that the 44 G150 unit deliveries will be assumed by segment competitors, therefore only changing % shares in the midsize category in favour of Embraer and Cessna.

CATEGORY FORECAST: SUPER MIDSIZE JETS



CATEGORY CHARACTERISTICS

PRICE: \$19.9m – \$28.4m **RANGE:** 3,150 – 4,000 nautical miles

SEGMENT COMMENTARY

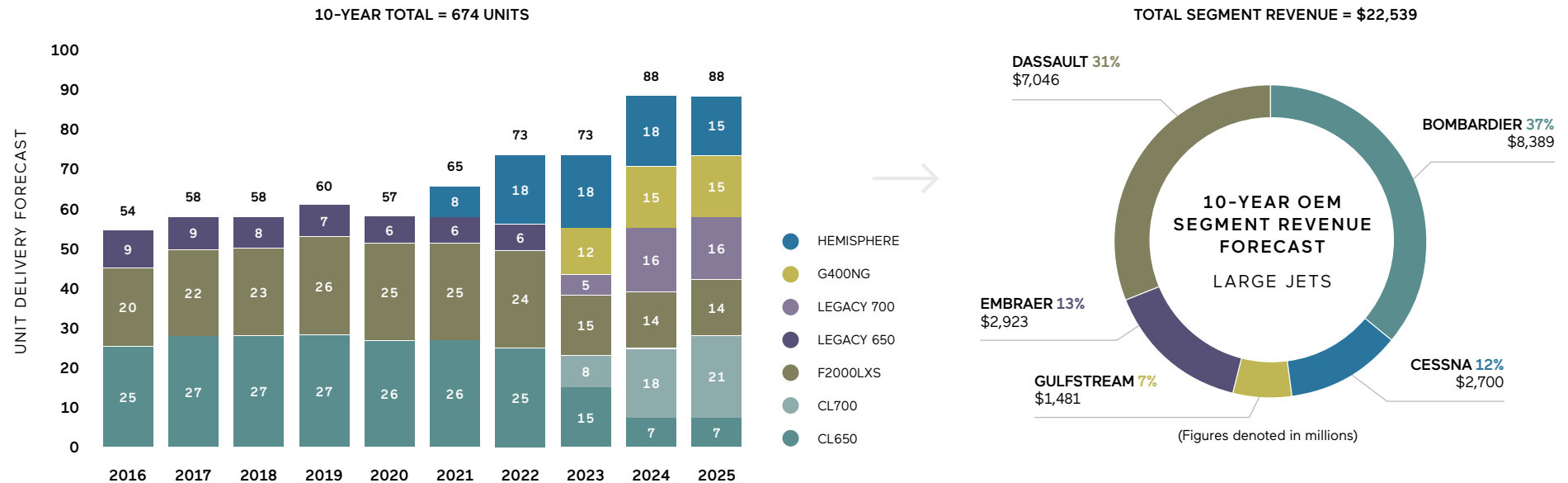
Bombardier was already the outright leader in this segment – based solely on its traditional (non-fractional) sales performance – and the Challenger 350 now has a steady stream of NetJets and Flexjet deliveries to further bolster it over the forecast period. Add a perfectly timed mid-life upgrade to the program (transitioning from the 300 to the 350) and you have a dominating market share position for Bombardier in a segment where every OEM is offering a model with a distinct value proposition.

Cessna, in yet another bold move in this segment (the first being to select Snecma as the engine supplier) has decided to drop the Silvercrest engine in favor of Honeywell's HTF7000L keeping the Longitude's 2017 entry-into-service schedule intact. We view the Longitude as a very capable aircraft that will secure second place in the segment over the forecast period.

Embraer and Gulfstream will compete for third place with the Legacy 500 and G280 respectively. Our forecast model gives Gulfstream the edge based on the market resilience of the G280 (largely on account of the program support provided by Israeli Aerospace Industries to Gulfstream) and the lack of an installed base to draw upon for the Legacy 500.

The "new" Citation X and Falcon 2000S have turned into exactly what the market perceived them to be and that is niche aircraft for buyers looking for a singular attribute i.e. speed (Citation X) or cabin volume (F2000S).

CATEGORY FORECAST: LARGE JETS



CATEGORY CHARACTERISTICS

PRICE: \$31.6m – \$35m **RANGE:** 3,200 – 4,075 nautical miles

SEGMENT COMMENTARY

We believe that the Large segment is poised for a major transformation over the forecast period. Since 1995, the category has largely been a duopoly between Bombardier with their Challenger 600 series models and Dassault with their Falcon 2000 variants. As a result, there has been little innovation in this segment as both manufacturers provided incremental updates to their products. However, Cessna's entry with the Hemisphere (currently planned for 2022) may be the catalyst for responses from other competitors.

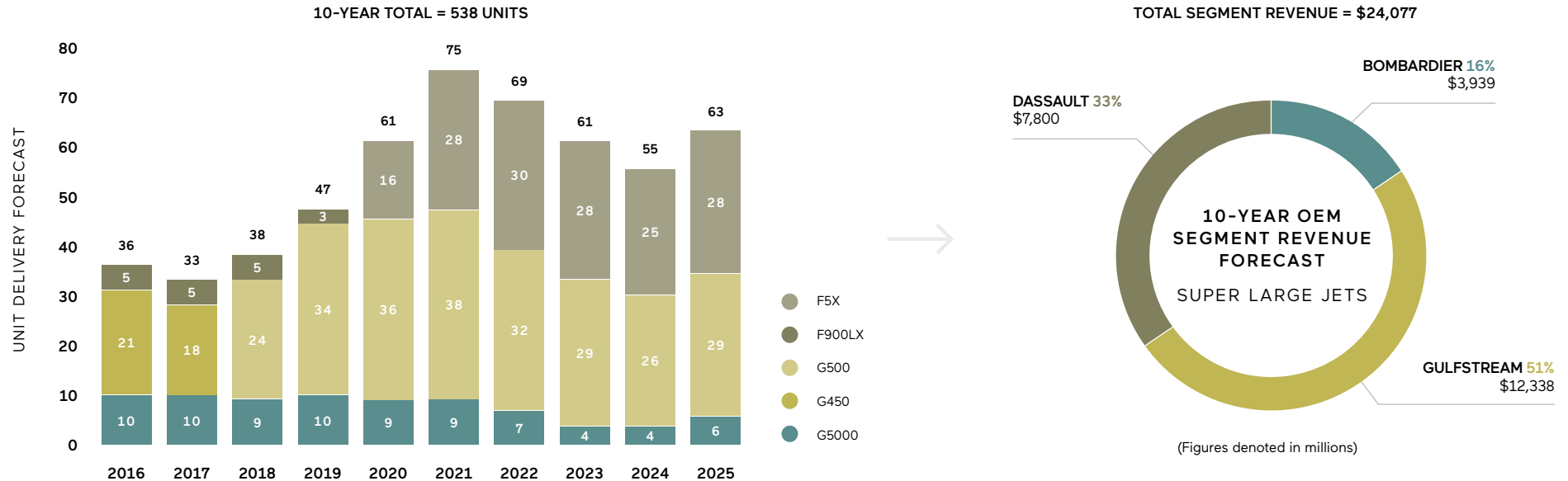
Following Cessna into the segment should be Gulfstream (in a 2023 timeframe), leveraging technology gleaned from their G500 and G600 family. But Gulfstream's derivative strategy might present a problem in terms of program economics, as scaling down means using a platform with an existing build-cost that is geared for a higher segment, but now offered at a lower price point. Despite this challenge, strategically Gulfstream may be keen to extend its reach beyond the Super Large and ULR segments in order to entrench itself across the higher-end categories.

With moves from Cessna and Gulfstream, perennial segment stalwart Bombardier will likely initiate its Large segment strategy and stretch the CL350 into a Large model offering i.e. a Challenger 700 (our designation). The extent of the wing redesign for the CL350 was perhaps an indication that its purpose was more than just about improving balanced field performance, but rather aimed at accommodating the additional weight a stretched version would require. The CL700 could also mark the launch opportunity for Honeywell's new 10,000 lbs thrust engine. As for the CL650, its best-in-class wide cabin will allow Bombardier to keep it as a niche product for loyal customers that have traded even for every variant introduced since the CL600.

For Embraer, a market entry in the Large segment seems to make the most sense for their next new development program which we forecast will also happen around 2023. By that time, their Legacy 500 installed base will offer enough of a trade-up opportunity to launch a program. Embraer's Legacy 700 (again, our designation) could follow Bombardier's lead and adopt the same new Honeywell engine.

Finally, for Dassault and the Falcon 2000LXS, and based on the French manufacturer's priorities in the Super Large and ULR segments, we believe that its focus and available resources will pre-empt them from offering anything other than incremental upgrades to the F2000LXS which will lead to a steady dilution of its once prominent position in this segment.

CATEGORY FORECAST: SUPER LARGE JETS



CATEGORY CHARACTERISTICS

PRICE: \$41m - \$50.4m **RANGE:** 4,328 - 5,220 nautical miles

SEGMENT COMMENTARY

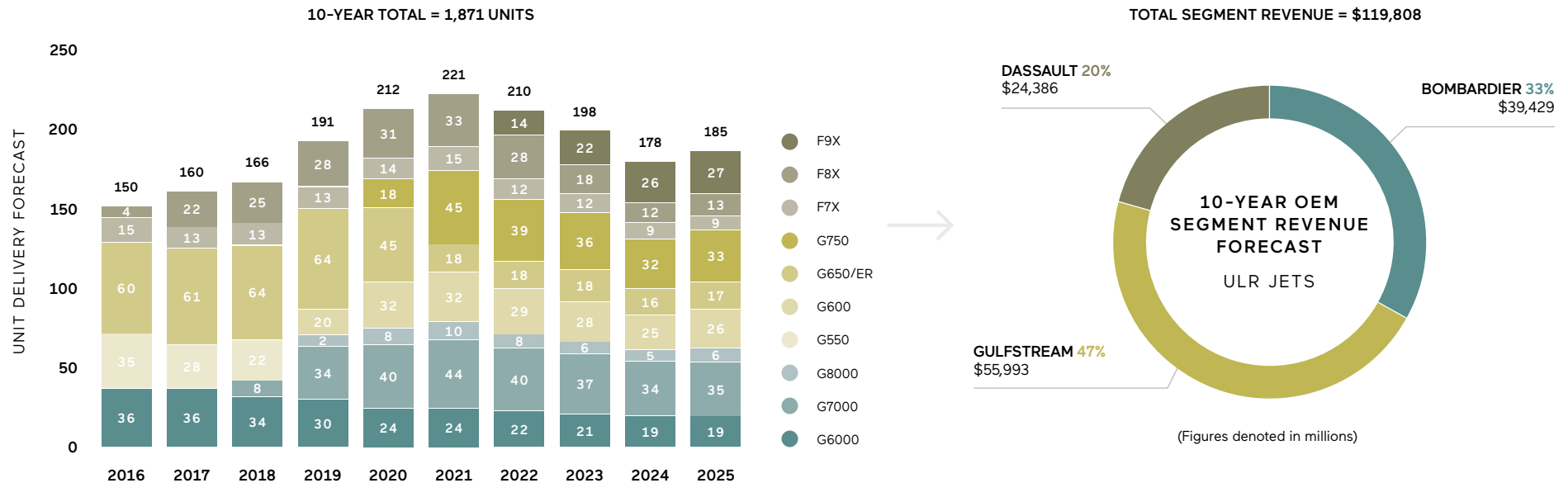
The Super Large segment is another example where two OEMs have historically divided most of the market share between them. For a long time it was Gulfstream and Dassault going head-to-head with the GIV-SP and the F900 respectively. When Bombardier introduced the G5000 back in 2004, they also competed against Gulfstream and the G450, the latter winning the predominant market share. The landscape is about to revert to a Dassault-Gulfstream dynamic, both introducing new models.

Dassault is developing the F5X while Gulfstream should debut the G500 in 2018. The G500 was derived largely from the G650 and as a derivative, poses fewer technological challenges and certification issues than a clean sheet design might. The stakes for Dassault, however, are much higher. Not only is the F5X a clean sheet design, it will also spawn what will become the French manufacturer's flagship product i.e. the F9X (our designation). Dassault has already incurred a schedule slip for certification to 2020 on account of Silvercrest engine issues. If these issues prove to be serious, this may affect the entry into service of not only the F5X but also the F9X, the key to Dassault's high-end segment strategy. An engine change for

Dassault on the F5X would be less likely, given the implicit preference the French Government has shown for a home-grown solution. However, should Snecma continue to grapple with issues on the Silvercrest, there may well be a tipping point to Dassault's commitment to Snecma, especially with an off-the-shelf Pratt & Whitney Canada solution waiting in the wings.

As for Bombardier and the G5000, our view is that Bombardier will concentrate its efforts in the Large and ULR segments where it has many billions of dollars of installed base to protect. While the G5000 will certainly benefit from its commonality with the G6000, allowing it to integrate incremental advances applied to its ULR cousin, matching Gulfstream and Dassault in terms of innovation requires a program spend that Bombardier has likely already earmarked for its Large and ULR programs.

CATEGORY FORECAST: ULTRA LONG RANGE JETS



CATEGORY CHARACTERISTICS

PRICE: \$53.8m – \$67.5m **RANGE:** 5,800 – 7,800 nautical miles

SEGMENT COMMENTARY

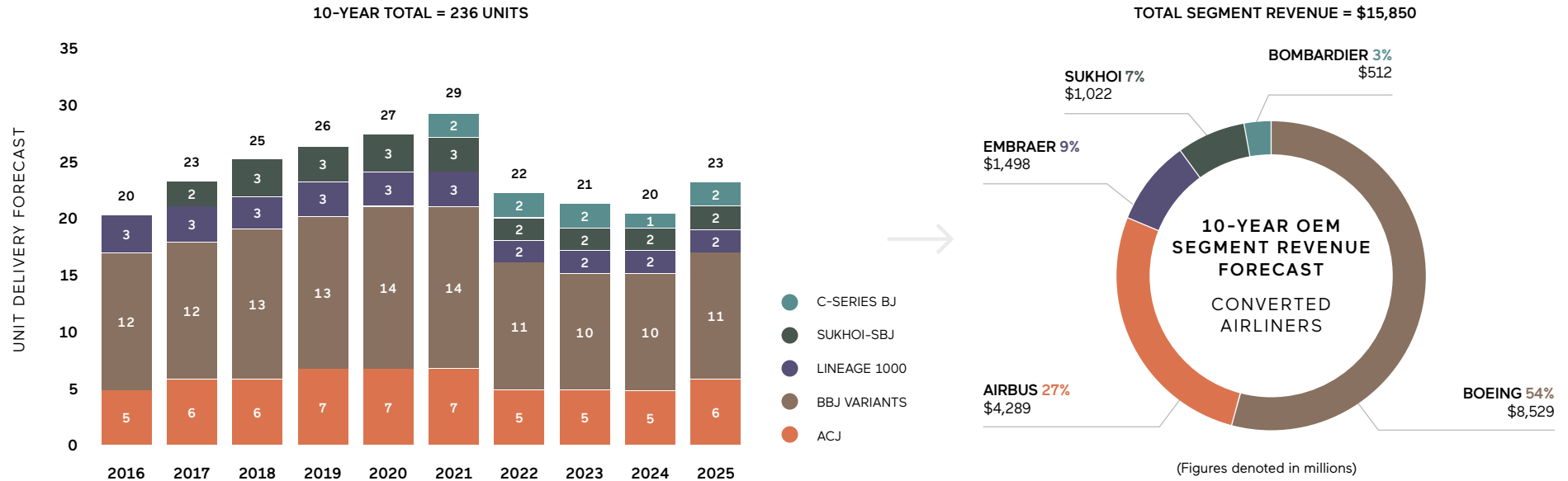
In the Ultra Long Range segment, unquestionably the industry's most important category in terms of size, a fascinating dynamic is unfolding; one where all three competitors are seemingly aligning their respective product lines in a similar fashion. If assumptions of our insight hold, all three ULR competitors will each offer 3 models in this space. 7 out of the 9 models have already been confirmed.

The driver for this trend has many layers. For example, the rise of emerging markets introduced first-time owners to business aviation who had their own customer preferences regarding range, speed and cabin comfort. OEMs have preferred to develop aircraft geared towards the higher-end segments, especially given a low-risk high-reward proposition in that the additional models have been or will be realized via derivatives (as opposed to expensive clean sheet designs). Further, customer preferences in this segment have been so divergent that OEMs want to tailor models to customer preferences (as much as they can)

without force-feeding them a product that incorporates specifications they do not want or need.

Our forecast has Gulfstream slightly behind the G7000, primarily due to its four-zone cabin. This will likely lead to Gulfstream introducing a G750 that will involve a stretched G650 fuselage to allow integration of the same accommodation. As for Dassault, industry watchers think it probable that a derivative from the 5X, a ULR model will follow i.e. the F9X (again a speculative designation). Finally, Bombardier has already confirmed their three-model ULR lineup. One issue will be keeping the G6000 relevant so that it can co-exist with its stablemates. Each OEM will face a difficult task to get there but by 2023, ULR customers will have 9 models to choose from in this segment, driving nearly half of all revenues in business aviation over the forecast period.

CATEGORY FORECAST: CONVERTED AIRLINERS



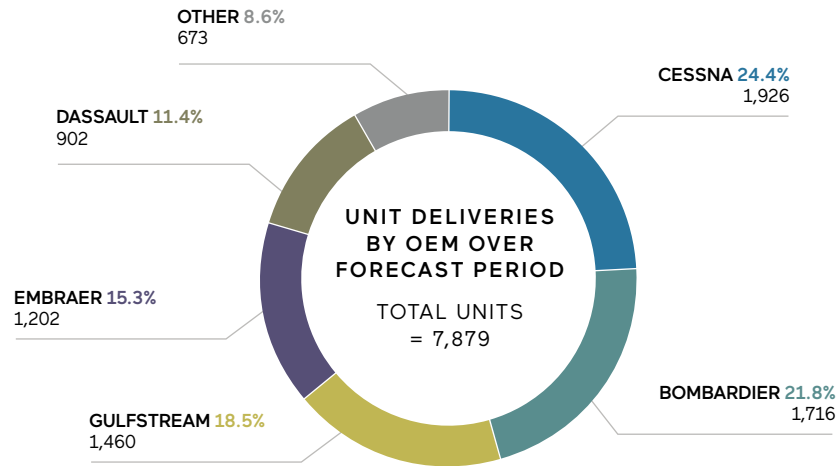
CATEGORY CHARACTERISTICS

PRICE: \$50m – \$72m RANGE: 3,000 – 6,700 nautical miles

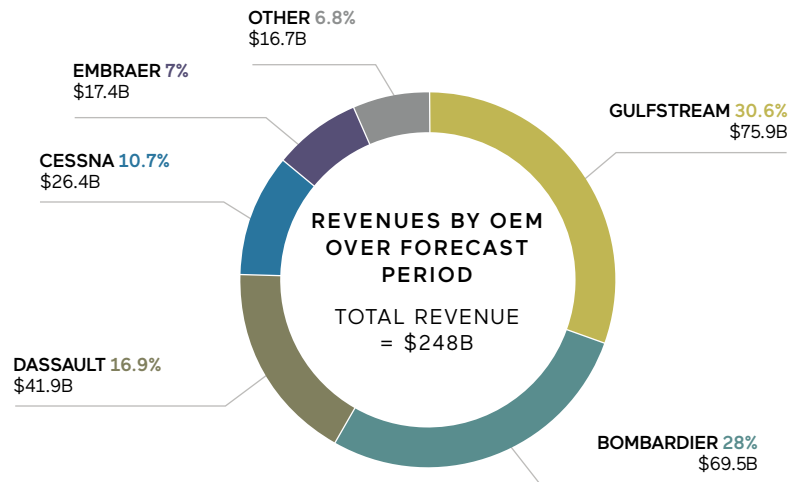
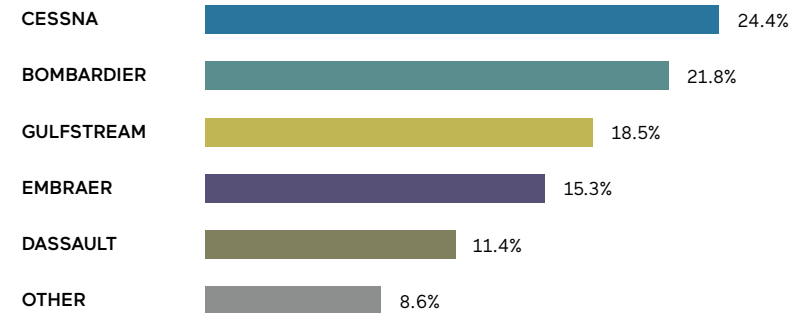
SEGMENT COMMENTARY

For the most part, unit delivery performance in the Converted Airliner segment has tracked the business cycle. The typical customer profile in this segment does not require low direct operating costs or range but prefers extensive cabin amenities.

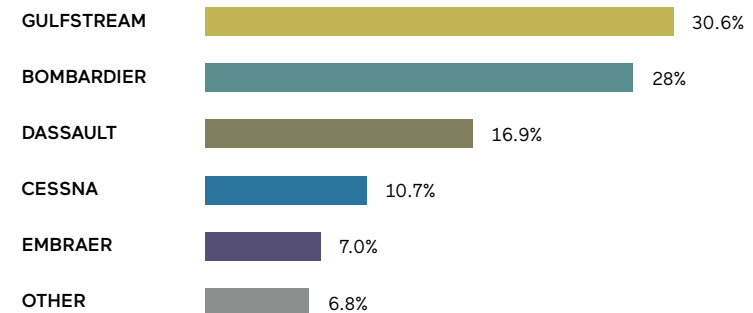
OEM UNIT DELIVERIES AND REVENUES RECAP (2016 – 2025)



OEM RANKING (UNIT DELIVERIES)



OEM RANKING (REVENUES)





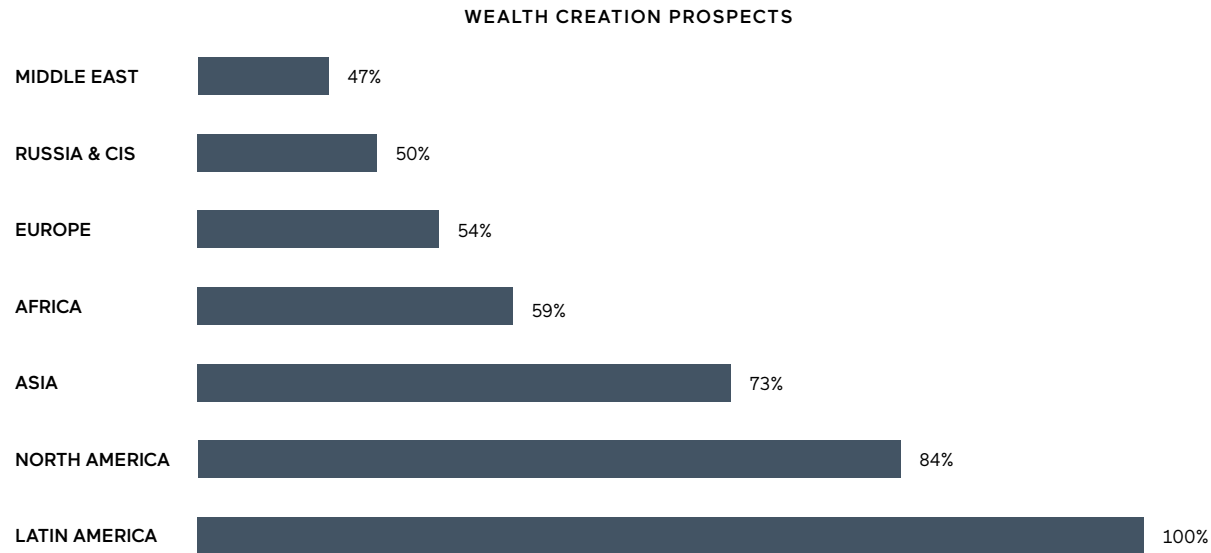


REGIONAL TRENDS

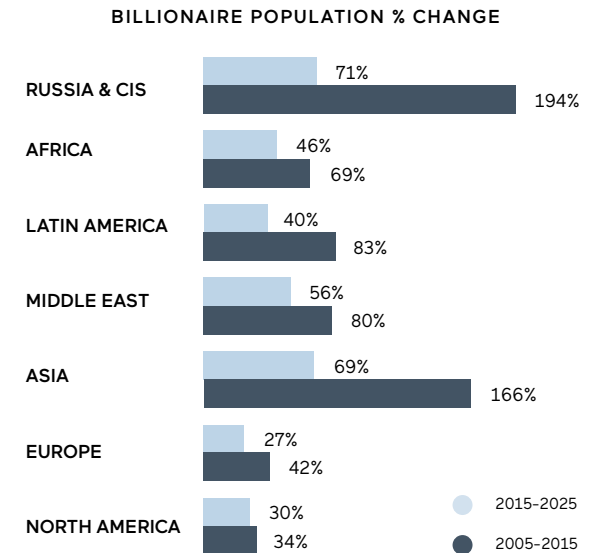


THE SLOWING PACE OF WEALTH CREATION

REGIONAL TRENDS SUPPORTING THE 7,879 UNIT DELIVERIES OVER FORECAST PERIOD (2016 - 2025)



Source: 2016 New World Wealth Report (Attitudes Survey)



Source: 2016 New World Wealth Report

In last year's forecast, we noted how the globalization of markets is making it more difficult to attribute a geographical distribution of unit deliveries.

Using the indigenous installed base to establish basic assumptions in terms of regional transaction activity is the preferred method for many forecasters. This, however, is losing efficacy as a method due to a shifting global market and other macro trends.

With this in mind, to garner greater insight into the future assumptions, the following sections look into trends and patterns (both secular and business cycle-specific) for the two main constituent groups of buyers for business aviation i.e. Fortune 500 companies and Ultra High Net Worth Individuals (UHNWIs).

Pace of wealth creation will slow

Over the next 10 years, the pace of wealth creation will slow due to the lessening contribution of the BRICS economies (as compared to the last 10 years) and tempered growth in North America. The same trend will take shape with Centa-millionaires (\$100m+) as their growth will track to the same percentages. A survey of UHNWIs conducted by a global authority and advisory firm on wealth intelligence* supported this trend on future wealth creation prospects. If true, the resulting effect will be a diminished pool of customers which may affect business aviation penetration rates.

*The survey conducted by Wealth-X and Knight Frank polled approximately 400 of the world's leading private bankers that represent over 45,000 UHNWIs whose collective net worth exceeds over \$500 billion dollars.

OUTFLOW OF UHNWIS FROM EMERGING MARKETS

REGIONAL TRENDS SUPPORTING THE 7,879 UNIT DELIVERIES OVER FORECAST PERIOD (2016 - 2025)

As emerging markets slow, an exodus of their Ultra High Net Worth Individuals (UHNWIs) grows, the residual effects of which may prove to have lasting consequences to the regions as a whole, and business aviation in particular.

Outflow of UHNWIs from emerging markets

While China grapples with its transition from an investment-driven to a consumption-based economy, a steady outflow of Chinese UHNWIs to Europe and North America is still ongoing. The same outflow is taking place in India where economic growth is forecasted to reach 7% this year but the Modi government is experiencing strong headwinds in gaining support for its much needed economic reform plan. However, the outflow of UHNWIs in these two markets is less of a concern as wealth creation opportunities in these economies will result in a net gain over the forecast period.

The situation is a little more stark in Russia and Latin America over the short term. In Russia, the IMF estimates the economy will contract about 1% in 2016 (after a 3.7% contraction in 2015). The belief is that Russia's economic woes run deeper than falling commodity (oil and gas) prices and ramifications of their incursion in the Crimea. Higher taxes, expanding the profile of inefficient state-owned companies and a failure to diversify their commodity-based economy has severely impacted the business climate in the country. Given this economic backdrop, UHNWIs are steadily moving out of Russia but unlike China and India, the prospects of replenishing wealth is dimmer.

The situation in Latin America is little better as scandal-plagued Brazil, the region's most important economy, is also experiencing a recession triggered by the sharp fall in commodity prices. The situation is so acute in Brazil that the impeachment of President Rousseff has actually calmed markets which now view a change in administration as a positive event. Unfortunately, Brazil still faces the daunting task of reforming its economy. Here too, the wave of UHNWIs is a one-way trip to regions with more stable economies and opportunity.

The key takeaway – in the context of business aviation – is that the outflow of UHNWIs from emerging markets is not only bad because it robs these regions of their potential to develop indigenous installed bases, it also stresses existing infrastructure in established business aviation hubs that are already operating on or above capacity. Ultimately, growth in business aviation has a much better chance by linking international regions together as opposed to layering more customers on top of the infrastructure of existing markets. However, our forecast reflects an eventual stemming of this outflow in the medium to long-term over the forecast horizon as positive cycles return, and a similar outflow being preempted from materializing in Africa and Southern Europe.



U.S. GROWTH AND THE PRICE OF OIL

REGIONAL TRENDS SUPPORTING THE 7,879 UNIT DELIVERIES OVER FORECAST PERIOD (2016 - 2025)

2016 may be a watershed year for the U.S. economy. The directional bets from investors, companies, consumers and the Federal Reserve are muted enough that it's making forecasts of where the economy is headed much more difficult to ascertain.

Sustainability of U.S. economic growth

The current backdrop of the U.S. economy is one characterized by a relatively flat but prolonged expansion that has materialized without the benefit of a global economic virtuous cycle. The economic integration of international financial markets (which was a crucial factor to growth in the emerging market business cycle) is now threatening to export volatility to developed markets, caused by the deceleration of the Chinese and Indian economies and full-blown recessions in Brazil and Russia.

However, our medium to long-term view is that the U.S. economy is sound enough to sustain current short-term pressure. While the current business conditions are not optimal – with the economy deemed to be at full employment (defined as 5% unemployment), wages increasing at a modest 2.3% (with still a fair amount of room to grow before inflation fears appear), and the labor force participation rate edging up to 63% (the highest level in two years) – from a structural perspective the U.S. economy should be able to bridge the gap between now and the rebound of several key emerging market economies. As a result, we expect the U.S. business aviation market to continue to be the nexus of business aviation transaction activity throughout the forecast horizon.

The impact of the price of oil on emerging markets and their business aviation participation

Emerging market economies significantly increase their business aviation participation when the price of oil is high. Currently, most of these economies are experiencing recessions as a result of the significant decrease in oil. Forecasting the timing of a rebound in oil prices is clearly beyond most

economists. Our forecast instead uses the current price of oil (i.e. less than \$50 per barrel) as a static variable in our forecast model which contributed to generating the current forecast of 7,879 units. By understanding how we reflected this variable in our model, users of our forecast can place actual unit delivery performance in the proper context. However, what we did want to do is better understand the dynamic of fluctuations in the price of oil on the various economies of the emerging market regions.

At current price levels, OPEC nations have more oil reserves that can be profitably tapped. That means that the Middle East region is better positioned to benefit from an incremental increase in oil prices. However, as the size of the Middle East business aviation market is relatively small, it would take a substantial increase in the price of oil (e.g. +\$80 per barrel) to trigger a material impact in the business aviation unit deliveries from regions such as Russia and Brazil where the current ratio of viable-to-unprofitable oil reserves is considerably less favorable.

WORLD BANK GDP PROJECTIONS	2015e	2016f	2017f	2018f
U.S.	2.5%	2.7%	2.4%	2.2%
EURO AREA	1.5%	1.7%	1.7%	1.6%
RUSSIA	-3.7%	-0.7%	1.3%	1.5%
CHINA	6.9%	6.7%	6.5%	6.5%
BRAZIL	-3.7%	-2.5%	1.4%	1.5%
INDIA	7.3%	7.8%	7.9%	7.9%
SOUTH AFRICA	1.3%	1.4%	1.6%	1.6%
ME & NORTH AFRICA	3.1%	3.2%	3.3%	3.5%

SHARE BUYBACK ACTIVITY

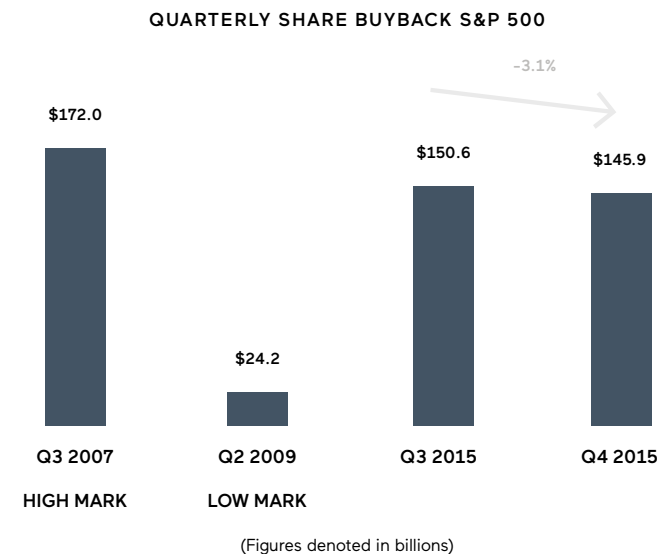
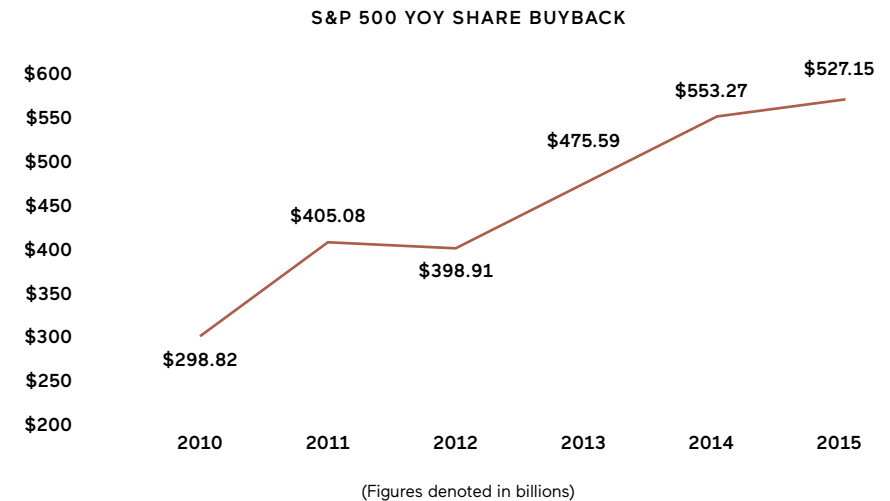
REGIONAL TRENDS SUPPORTING THE 7,879 UNIT DELIVERIES OVER FORECAST PERIOD (2016 – 2025)

In the regional outlook commentary for North America in last year's forecast, we noted a specific trend among companies allocating cash for share buybacks.

Share buyback activity still rampant

When U.S. corporate profits rebounded to normative levels after the 2008 recession, the industry expected unit deliveries to quickly follow suit. When they did not materialize, it challenged a fundamental tenet in business aviation forcing a reassessment of how we view the industry. Several factors contributed to the muted recovery, not the least of which involved the deceleration of the emerging market economies. But what made this period unique was the low interest rate environment that had a profound effect on the buying behavior of Fortune 500 companies. Companies opted to shift capital investment in equipment (the spending envelope from which aircraft are purchased) to share buybacks. Over the last 5 years, buybacks from companies in the S&P 500 have totalled \$2.7 trillion. Understandably, companies are taking advantage of the low interest rate environment to finance acquisition of their shares. However, this is clearly displacing the aircraft procurement schedules of many companies as business aviation travel is less of a priority in their capital budgeting decisions.

What are we to derive from this activity in terms of its effect on pre-empting aircraft transactions? Our position is based largely on what our corporate customers are telling us which we are taking at face value. That is, specifically, that share buybacks will remain as long as interest rates are low. A change will only ensue when the prospects for realizing a greater return on cash are higher from investing in capital equipment. As we still see ample room for growth in the U.S. economy, and the fact that cash and cash equivalents of S&P 500 companies currently stand at \$1.326 trillion (which is only 0.5% off the highest level mark of \$1.333 trillion set at the end of 2014), we believe that this signals that a significant increase in capital spending on equipment is just around the corner, and with it an uptick in business aircraft transactions.



REGIONAL DISTRIBUTION OF 7,879 UNIT DELIVERIES OVER FORECAST PERIOD (2016 – 2025)



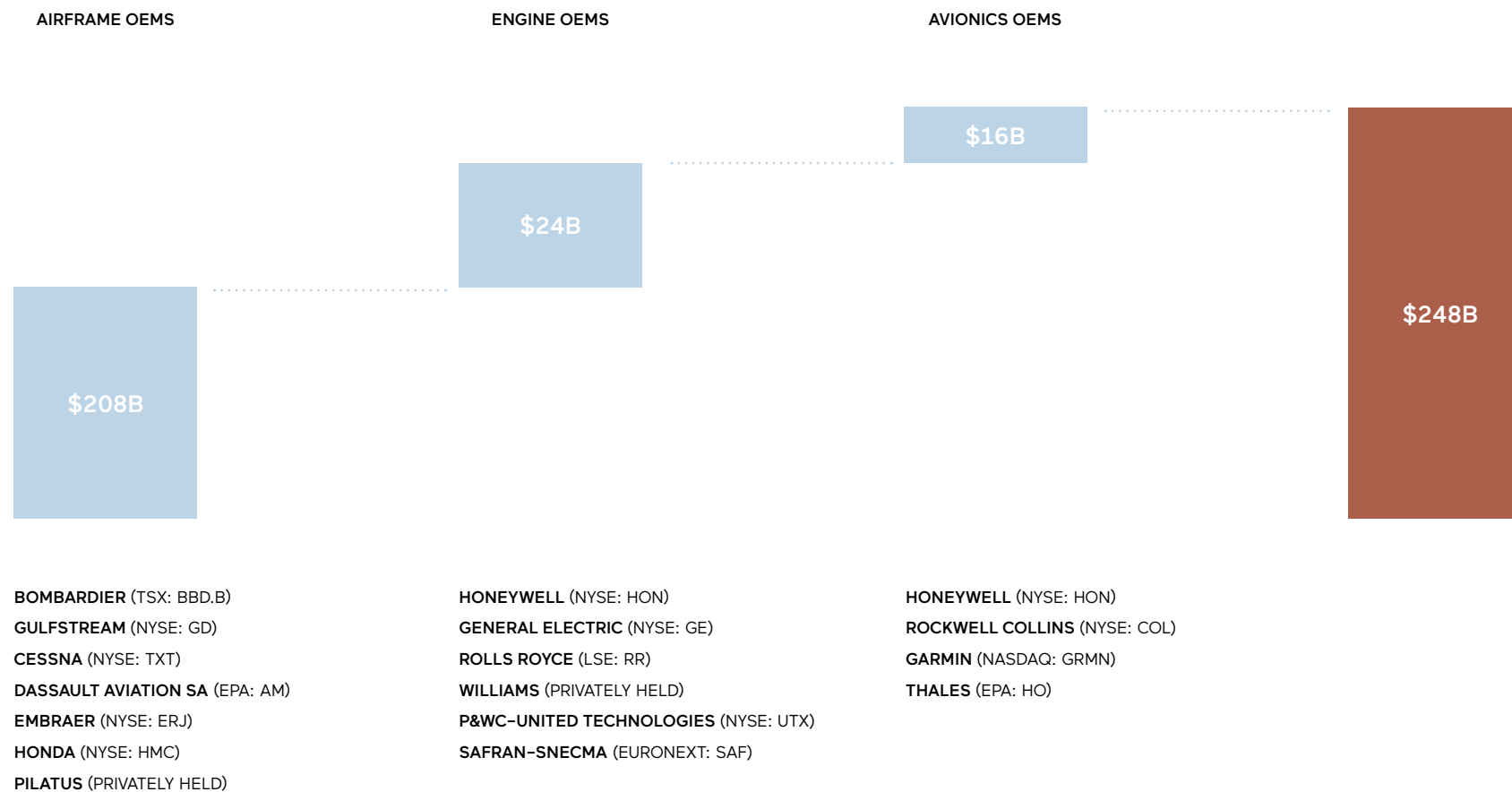




**WHAT THE BUSINESS AVIATION OUTLOOK MEANS
FOR ENGINE AND AVIONICS OEMS**

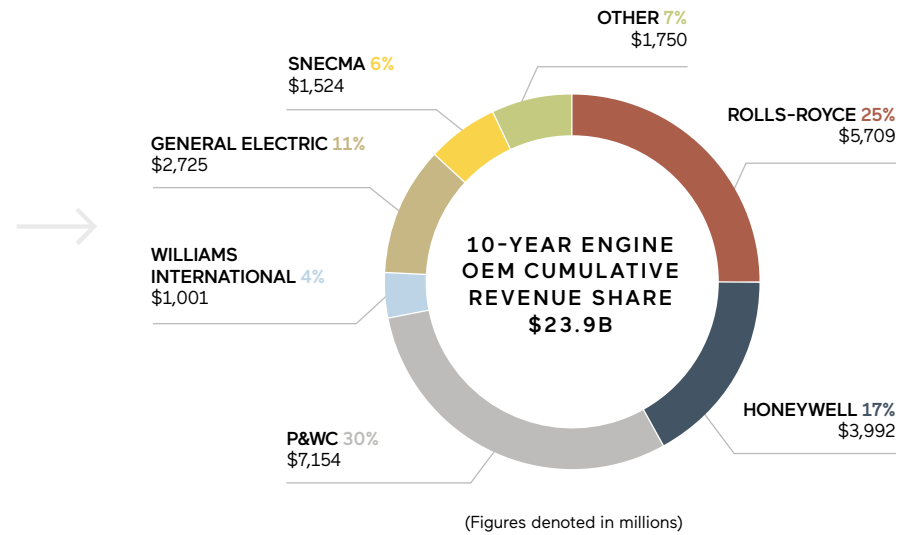
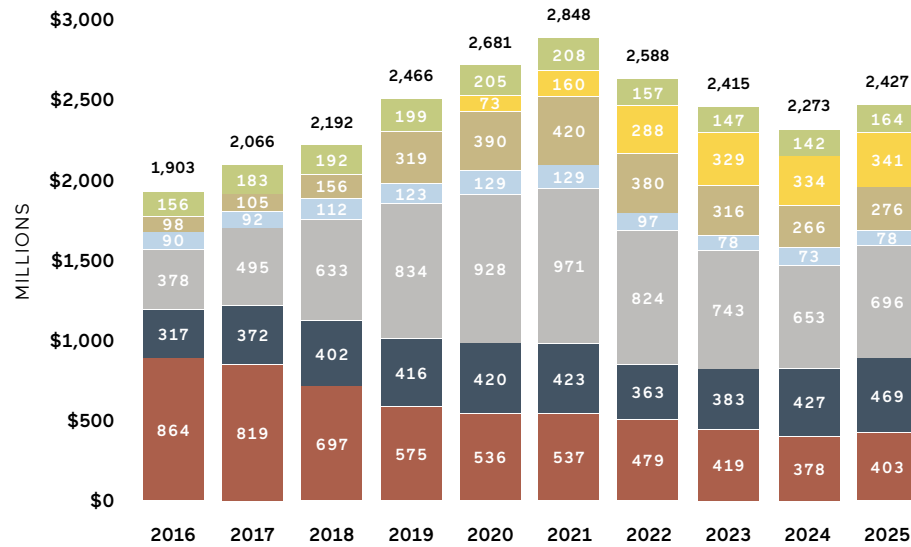


REVENUES OVER FORECAST PERIOD APPORTIONED BY BUSINESS AVIATION MANUFACTURING VALUE CHAIN (2016 – 2025)



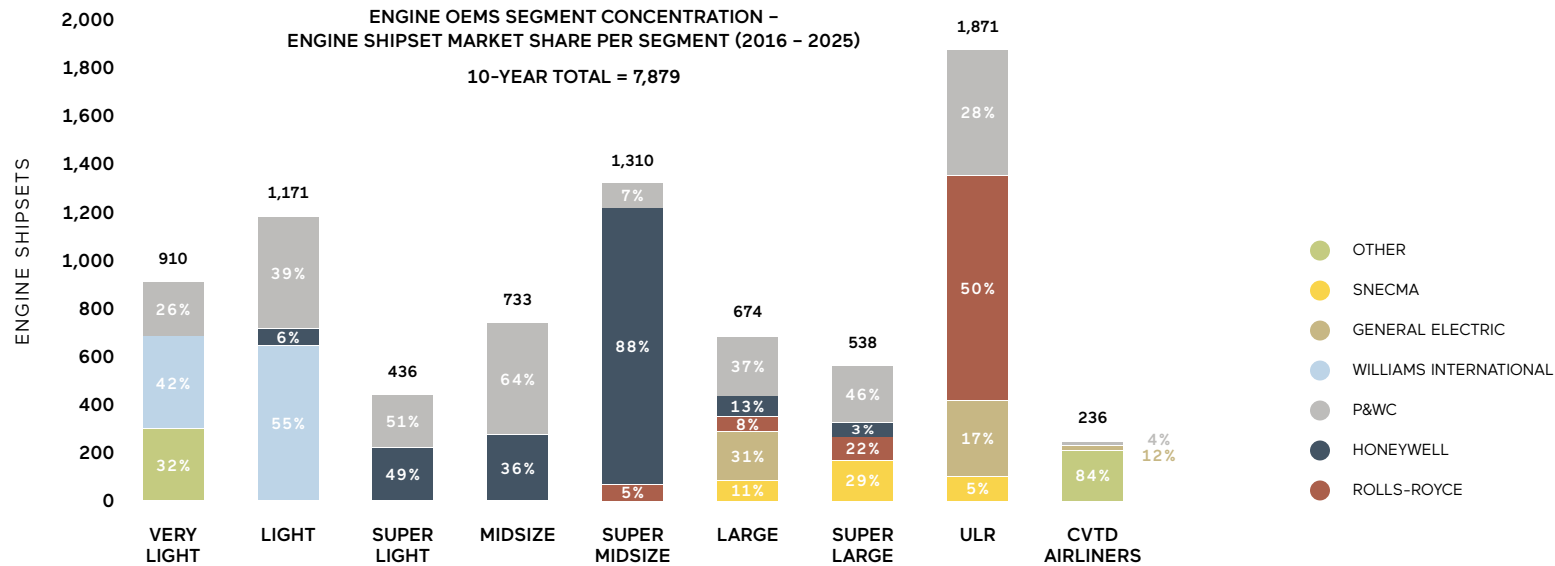
ENGINE OEMS: UNIT AND REVENUE MARKET SHARE AND SEGMENT CONCENTRATION (2016 - 2025)

ENGINE OEMS YOY REVENUE MARKET SHARE (2016 - 2025)



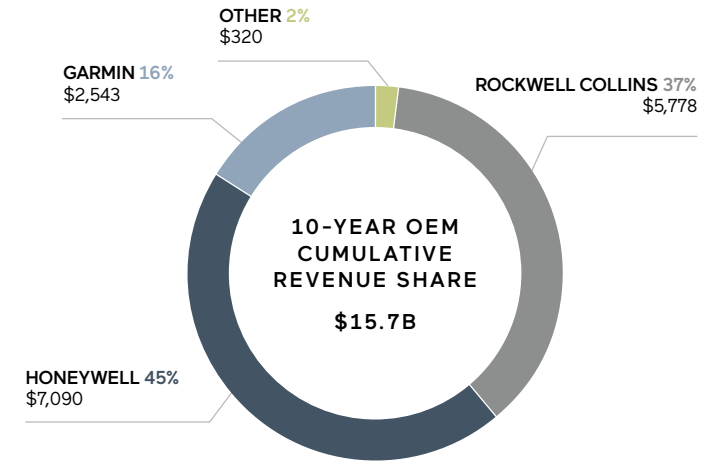
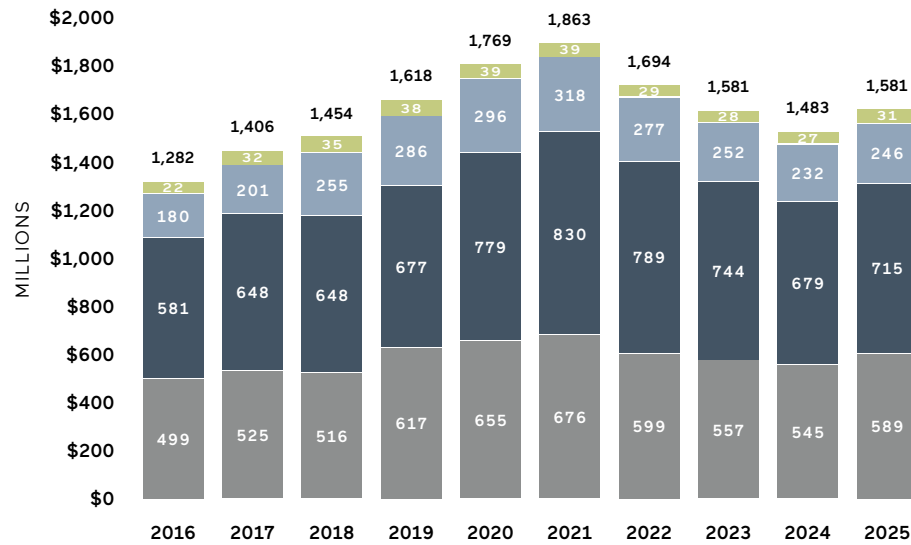
ENGINE OEMS SEGMENT CONCENTRATION -
ENGINE SHIPSET MARKET SHARE PER SEGMENT (2016 - 2025)

10-YEAR TOTAL = 7,879



AVIONICS OEMS: UNIT AND REVENUE MARKET SHARE AND SEGMENT CONCENTRATION (2016 - 2025)

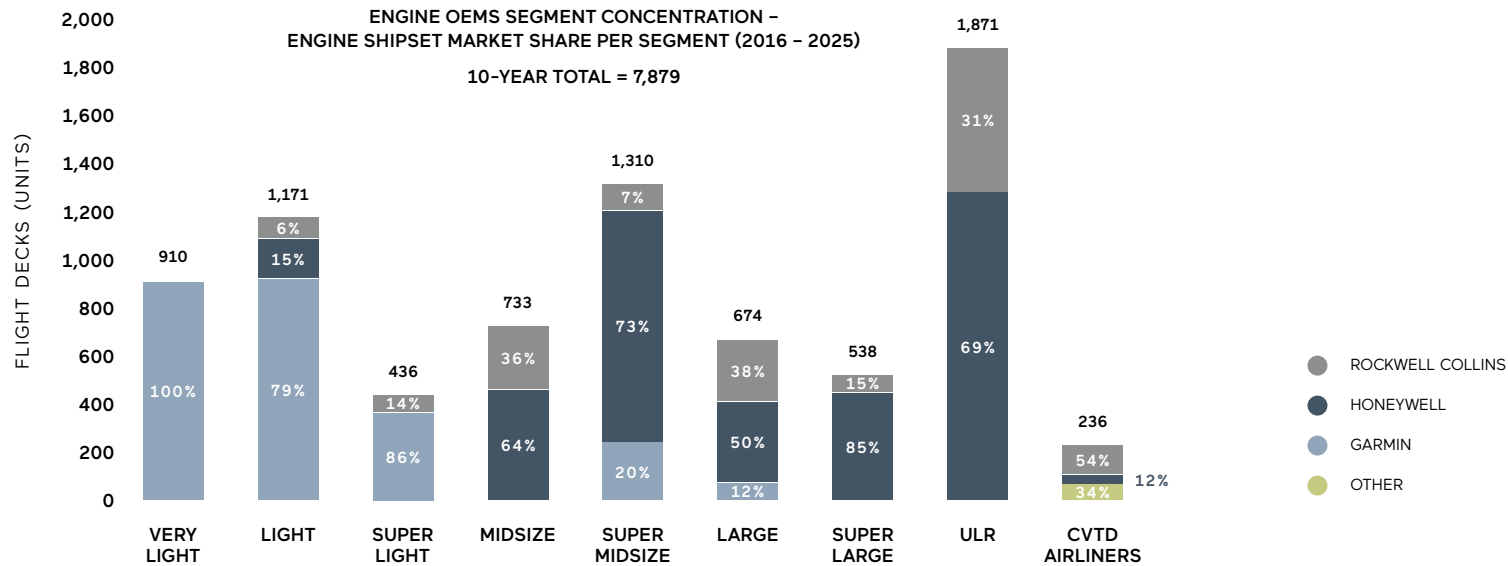
AVIONICS OEMS YOY REVENUE MARKET SHARE (2016 - 2025)



(Figures denoted in millions)

ENGINE OEMS SEGMENT CONCENTRATION -
ENGINE SHIPSET MARKET SHARE PER SEGMENT (2016 - 2025)

10-YEAR TOTAL = 7,879







CONCLUSION



The difference from last year's forecast

This 2016 10-year forecast shows a marked decrease of 10% in unit deliveries and 9% in revenues from last year. This is largely due to the continued waning influence of emerging market economies as consumers of business aviation. However, when the rebound in these regions eventually takes shape, they will have the benefit of leveraging the base they established during the last business cycle.

Opportunities in the U.S. market

We will see a return to a more U.S.-centric market as overall unit deliveries over the forecast period will disproportionately decrease in international markets. While the U.S. economy will not have the benefit of a global virtuous economic cycle, there is still ample room for growth. One specific opportunity lies in the existence of pent up demand that may ignite once companies draw down the use of available cash to fund share buybacks and shift it towards capital expenditures on equipment instead.

Impact of the price of oil on business aviation

The extent of the recovery required in the price of oil that would result in a material impact to the economies of the emerging market nations is not insignificant. Rather, the economic viability of mining current oil reserves overwhelmingly favors OPEC nations which are largely situated in the Middle East. In the context of business aviation, the problem is that this region does not have huge business aviation installed bases. In order for the industry to experience a material increase in business aircraft orders from emerging markets again, namely from Russia and Brazil, the price of oil needs to increase to at least \$80 (our estimate) per barrel. However, our forecast has conservatively pegged the price of oil below \$50 over the entire forecast period which translates into only a modest contribution (in terms of aircraft

deliveries) from Brazil and Russia. Should commodity prices in general rebound anywhere close to historical ranges, it would likely result in a significant increase to our current unit and revenue projections.

New product development

This forecast highlights several new aircraft programs coming to market, assumptions based on obvious opportunities in the specific segments. Questions remain as to whether the OEMs in question will be financially capable of initiating these projects. In this respect, our forecast has some inherent risk. However, it should be noted that from all the new programs projected to be developed, only one is a clean-sheet design (i.e. Embraer's Legacy 700) which is significantly more expensive than derivatives of existing programs.

Pre-owned market

The pre-owned market is still trying to absorb the excess supply created during the run-up to the 2008 recession. Although the inventory is today edging back to equilibrium (supply meeting demand), pricing of pre-owned aircraft is still seemingly lagging. One explanation for the delay in the residual value recovery may actually be artificial. Specifically, it could be that five years ago, OEMs were extending inordinate discounts (e.g. list minus 25%) to jump-start sales in the aftermath of the 2008 recession which is why the spread between list prices and current pre-owned transaction prices is so large. This would explain why the market is currently below the healthy benchmark of 13% (available inventory for sale versus the in-service fleet) yet residual values for 5-year-old aircraft remain stagnant at 55% of initial list pricing.

Conclusion

We expect 2016 to be an important year for business aviation as the industry is at the mid-point of the recovery run in the current business cycle. The previous two (business) cycles had sharp increases in the recovery runs followed by sharp, symmetrical downturns. This year will determine whether our call for the current business cycle, i.e. muted but resilient recovery followed by a softer downturn, will hold true.

SOURCES

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|--|---|---|
| → Aircraft Bluebook | → Knight Frank Wealth Report, 2016 | → Standard & Poors |
| → Aviation International News (AIN) | → Macrotrends.net | → The Federal Reserve Bank |
| → Bloomberg Business | → Market Realist Investment Research & Analysis | → The International Monetary Fund (IMF) |
| → Business & Commercial Aviation (B&CA) | → Moody's | → The Wall Street Journal |
| → EIS (U.S. Energy Information Administration) | → National Bureau of Economic Research (U.S.) | → The World Bank |
| → Focus Economics | → New World Wealth Report | → U.S. Department of Commerce |
| → Haver Analytics | → Rystad Energy | |

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