It has been a long and miserable few years for the lower end of the business jet segment. The financial collapse of 2008 has been brutal to this huge sector, causing the disintegration of traditional markets in Europe and the USA, and eroding a long established and previously flourishing customer base.

This segment – which spans the $2.9 million Eclipse 550 very light jet (VLJ) to the $9.4 million Cessna Citation CJ4 light twinjet – makes up 40% of the 18,500-strong global business jet fleet, but demand for these models has been decimated since the financial crisis and has yet to recover.

“This sector was hit harder than any other [mature] market segment,” says Daniel Hall, senior analyst with Ascend, a Flightglobal advisory service. “A sustained weak market and intensifying competition [with 13 types in this sector] has resulted in plummeting values. Most 10 year-old aircraft have seen their value halved in nominal terms.”

Hall believes the light jet market can only fully recover when the traditional economies have recuperated. Thankfully, recovery in the USA – home to around 70% of the VLJ and light-cabin fleet – is beginning to take hold, with a GDP growth of about 3% expected this year.

With the exception of the UK and Germany, Europe – home to around 12% of the effects of global VLJ/light jet inventory – remains very fragile, however. “The global financial crisis have been compounded by the euro currency crisis and the collapse of economies in specific [previous strong markets for light jets], such as Portugal, Ireland, Greece and Spain,” says Hall.

According to fellow aviation analyst Roland Vincent, a major barrier to recovery is the oversupply of aircraft in the US market. Large volumes of business jets, particularly in the light jet sector, were delivered during the 2006-2008 period due to high demand. “Many aircraft are being used extensively, while others are being parked until a buyer comes along,” says Vincent.

This over-capacity has caused residual values to plummet. Consequently many aircraft owners have chosen to keep hold of their as-
sets, rather than sell them at a huge loss.

Citing Ascend data, Hall reveals that in 2004 first owners sold their aircraft after four years on average. This dropped to less than three years in 2008, but by 2014 an owner is holding on to their aircraft for around seven years.

For the many customers who have had no choice but to sell their aircraft – often at a huge loss – this has altered market perception, Vincent says. “Luring these customers back to the fold will not be an easy task,” he adds. What is needed is a fresh approach towards light business jet design, as some of the offerings in this segment are “simply too small” for many owners, particularly in North America.

He points to research from the US Department of Health and Human Services, which reveals the average weight of an American man in the 95th percentile has increased by 24% – or more than 23kg (51lb) – in the 40-plus years spanning the era of the earliest business jet designs to the pre-recession period. Average height also increased during the same period by nearly 1in.

“The traditional customer has evolved over the years,” says Vincent. “Many of the light business jets around today were designed with the smaller traveller in mind.” Embraer broke the mould with the Phenom 100 and 300, which have proven very popular within the segment due to their relatively spacious cabins. The types are the largest in the entry-level and light-cabin segments. The Phenom 300 was the most popular aircraft in 2013, with 60 of the twinjets delivered between January and December.

Given Embraer’s success other manufacturers are now under pressure to increase the cross-sections of their aircraft, or bring something unique to the market within this increasingly large and crowded sector.

**CESSNA**

Cessna has made no secret of its intention to launch a new family of “wide cabin” light business jets, and says the key drivers of this future line-up will be a larger cabin, modern avionics, improved efficiency and direct operating costs.

The Textron Aviation subsidiary is already a market leader in the light business jet sector, with five aircraft in its line-up.

This includes the 1,200nm (2,220km) entry-level Mustang, the 1,600nm M2, 1,800nm CJ2+, 2,100nm CJ3+ – which entered service in September – and the 2,400nm CJ4.

The airframer is well aware of the market appeal of small jets with large cabins. In 1994 it launched its Excel business jet which later morphed into the Citation XLS. The 1,900nm aircraft was launched as a competitor to Bombardier’s Learjet 45 – which was introduced two years earlier, creating the new superlight segment.

Cessna’s has already unveiled a concept design for a light business jet with a roomier cabin in order to gain customer feedback. It declines to comment on the status of the programme, but says it is “continuing to aggressively invest in new products”.

**CIRRUS AIRCRAFT**

The US developer of the SR family of piston singles is on track to deliver the world’s first single-engined personal jet late next year, and has already received 550 firm orders for the seven-seat Vision SF50. The first production conforming aircraft, C0, flew for the first time on 24 March. It is being used for performance verification and, towards the end of the programme, will undertake in-air parachute testing. Aircraft C1 is scheduled to enter service in the third quarter and will be used for systems, ice and engine testing. A final flying prototype, C2, will join the flight test programme 45 days later and will undertake reliability evaluations.

The $1.96 million, carbonfibre Vision is equipped with a Garmin G3000 flightdeck and an emergency parachute system. Powered by a Williams International FJ33 turbofan, the aircraft has a range of 1,200nm, a stall speed of 61kt and a cruise speed of 300kt (556km/h).

**HONDA AIRCRAFT**

After an 11-year approval effort, the HA-420 HondaJet is finally approaching the finishing line. Certification of the light jet is scheduled for the first quarter of 2015, leading to initial deliveries soon after.

Joint venture partners GE Aviation and HondaJet clinched Part 33 certification for the 2,100lb-thrust (9kN) HF120 engine late last year, following an intensive programme that involved 13 engines performing 14,000 cycles in 9,000h of testing.

**PILATUS AIRCRAFT**

The Swiss airframer made its first foray into the business jet market with the launch in May 2013 of its PC-24. The light twinjet was rolled out in August, and is scheduled to make its first flight before the end of the year. Pilatus – developer of the PC-12NG single-engined turboprop – says the PC-24 has been so well received that production of the Williams International FJ44-4A-powered aircraft is already sold out for the next three years.

**SYBERJET**

The Cedar City, Utah-based start-up is planning to fly its SJ30i later this year. The Mach 0.83 light business jet is a revamped version of the SJ30 – originally built by Sino Swearingen and later by Dubai’s Emivest, before being acquired by its current owner MetalCraft.

The latest model will feature a Honeywell Primus Apex-based flightdeck called SyberVision and a new interior when it enters service in the second half of next year.

SyberJet is also developing a more powerful version of the seven-seat twin, dubbed the SJ30x. This model is scheduled to enter service in 2017, featuring more powerful Williams International FJ44-3AP-25 engines with dual-channel FADEC. SyberJet says: “The SJ30x will offer more range, quicker time to climb, higher cruise speed at altitude, better hot-and-high performance, increased payload and single-point pressure refuelling.”

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**MARKETPLACE**

**VLJ/ENTRY LEVEL/LIGHT BUSINESS JET**

**MARKETPLACE**

<table>
<thead>
<tr>
<th>Company</th>
<th>Price (m)</th>
</tr>
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<tbody>
<tr>
<td>Cessna Mustang</td>
<td>3.47</td>
</tr>
<tr>
<td>M2</td>
<td>4.67</td>
</tr>
<tr>
<td>CJ2+</td>
<td>7.27</td>
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<tr>
<td>CJ3+</td>
<td>8.44</td>
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<tr>
<td>CJ4</td>
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<tr>
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<td>Embraer Phenom 100E</td>
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<td>Phenom 300</td>
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<tr>
<td>Cirrus Vision SF50</td>
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</table>
The superlight and midsize sectors have also had a tough time. This broad segment – which spans the $13.8 million Learjet 75 to the $24.5 million Gulfstream G280 – represents 43% of the global business jet market according to Ascend, but its overall value has declined since 2013 by more than 10%.

The decline has been more pronounced in the superlight sector, however, which saw the value of its deliveries fall from more than 25% of the total market in 2008 to around 10% in 2013.

However, there are signs that this segment has already started to rebound, and independent aerospace analyst Roland Vincent is upbeat about its prospects.

“We are more bullish about this sector than any other,” he says. “The purchase indications in our recent survey for the last 15 quarters reveal a great deal of interest in midsize models, particularly in the USA where over 70% of the fleet is based... Buyers are intrigued by the host of new aircraft being developed.”

He argues the superlight/midsize sector offers more value to customers than many of the light- and large-cabin offerings on the market today. “They have large stand-up cabins, long enough ranges to meet virtually all transcontinental US missions and even the occasional transatlantic crossing from the US northeast,” he says. Many new buyers are choosing to opt for a midsize business jet straight away rather than move up through the segments, he adds.

Ascend shares Vincent’s optimism. In its recent 10-year forecast, it reveals a steady year-on-year increase in deliveries across these two segments between 2014 and 2023.

This growth can largely be attributed to the arrival of brand new designs alongside mid-life upgrades of existing programmes.

**BOMBARDIER**

The Canadian airframer has had a busy 10 months. December marked the entry into service of the superlight Learjet 75 – a remodelled version of the 16-year-old Learjet 45, featuring more powerful Honeywell TFE731-40BR engines, a Garmin G5000-based Vision flightdeck and a new interior.

Six months later the upgraded Challenger 350 entered service, replacing the best-selling super-midsize model, the Challenger 300. The 10-seat 300 made its service debut a decade ago and ranked second in the shipment charts in 2013, with 55 aircraft delivered.

The 350 is powered by Honeywell HTF7350 turbofans and features a Rockwell Collins Pro Line 21 advanced avionics suite and a revamped cabin with Lufthansa Technik’s Nice high-definition cabin management system, contemporary seat design and a new modular galley.

Meanwhile, the future of Bombardier’s newest midsize offering, the Learjet 85, is unclear following the airframer’s decision in July to review the certification and entry into service timeframe of the clean-sheet design as part of a wider rethink of priorities with the Global 7000 and 8000 programmes.

The 10-seat aircraft was launched in 2008 and entered flight testing on 9 April this year – more than two years late – due to what Bombardier vaguely describes as challenges with the composite construction. The Learjet 85 has continued to perform test flights in Wichita, but Bombardier has steadily refused to clarify the entry into service date for the aircraft.

**CESSNA**

As with the light sector, Cessna is a pre-eminent player in the superlight and midsize segments. Two of its established platforms – the Citation Sovereign and high-speed X – have each undergone a major makeover in the past year. Cessna will be hoping the improved performance, revamped interior and Garmin G5000 flightdeck will heighten the appeal and extend the life of the 10-year-old and 18-year-old designs for some time to come.

As competition has intensified in this sector, however, Cessna has turned its attention to new designs to challenge rival offerings.

The first new aircraft to come to market will be the Latitude midsize business jet. Cessna has set its sights on 2015 certification and service entry for the Latitude, which was launched in 2011 and falls neatly within the gap created between the 3,000nm Sovereign+ and the 2,100nm Citation XLS+.

Three Latitude flight-test aircraft have logged more than 600h across 260 flights since the maiden sortie on 18 February. The fourth test aircraft – named P-3 – joined the fleet on 30 September with a 2.5h first flight.

The Latitude shares the wing, aft section and the Pratt & Whitney Canada PW306D engine with the Sovereign+, but it introduces a wider and taller cabin, increasing the width by 28cm (11in) to 1.96m and the height by 6cm (2.5in) to 2.01m.

“Buyers are intrigued by the host of new aircraft being developed”

**ROLAND VINCENT**

Aerospace analyst