



Completion & Design **Insight** 2023

2022 **In Review**

What To Expect In 2023

2022 in Review & What to Expect in 2023

ALTEA's perspective on the business aviation market

Completion & Design

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> OEMs will lead the way

Last January the industry had high hopes in the completion and design sector. Off the back of a global pandemic and the resolution of Boeing's BBJ MAX's technical challenges, all expected some normality would return. Then came Russia and the invasion of Ukraine resulting in energy price hikes, rising commodity prices, and alarming inflation. So how has the completion and design sector of the industry fared?

Airbus ACJ has pushed ahead with orders on its ACJ220. Last year ALTEA predicted this to be a landmark niche product for the future of ACJ and so it has proven. In January, ACJ took an order of 22 A220s including two ACJ220 for the Florida-based lessor, Azorra. It has created a dedicated TwoTwenty studio in Toulouse HQ for customers to review, customise, and select their very own Airbus flying real estate. Let us not forget FIVE, the Dubai-based Group are expecting their completed ACJ220 aircraft to be re-delivered early this new year. Along with the re-delivery of a completed ACJ319 neo in July the green shoots of a return to a buoyant ACJ completion market looks set to grow through 2023 and 2024.

Boeing BBJ has bounced back from the challenges of the MAX with four orders and one completed delivery last year. Not a bumper year by a long stretch, however Boeing will focus their efforts where they know the Boeing brand is strong and the market has an appetite – that market being the Middle East, home to 25% of the world's bizliner fleet, or 98 aircraft. These aircraft are part of an ageing fleet and several operators will be looking at fleet renewal over the coming 18 months to three years.

Both Gulfstream and Bombardier have backlogs across many of their products as orders keep coming in. Although ALTEA notes a slight cooling of the market towards the end of the year with an uncertain economic environment – defined by high-inflation and currency devaluation. Nevertheless, Gulfstream managed to deliver 35 aircraft in Q3 2022, and 82 in the first nine months of 2022 overall. It expected to deliver another 40 aircraft in the final three months of the year – no confirmation on that number yet. In Canada Bombardier were on track to exceed 120 aircraft deliveries in 2022 with a 15 million USD backlog still to work through. Both these OEM giants, along with Dassault, have new products in development readying for entry into market throughout 2023 and 2024.

> Supply chain delays

This is all good news, isn't it?

Well not exactly. The main issue is still supply chain delays and a backlog of orders not to mention some frailty in the economic forecast due to the aforementioned global challenges. New owners looking to acquire a new aircraft can expect to wait up to 24 months in some cases for their shiny new aircraft.

This has meant completion centres have focused much of their return to full operation after the pandemic on maintenance, and upgrades of various business aircraft fleets. However, there is a particular area where growth *is* happening for these centres and that is extensive upgrades and cabin refurbishment whilst these aircraft are in maintenance.

> How to prepare for the upcoming maintenance of an aircraft

There are growing opportunities for exterior paint, cabin refurbishment and connectivity upgrades within the completion business for supply chain, designers, and maintenance centres alike. As the business aircraft global fleet ages with a back-drop of the lowest pre-owned inventory market ever recorded, aircraft are approaching eight and even twelve-year checks where the aircraft will require a lengthy input to a maintenance centre (MRO). As this input to the MRO approaches, owners (and their advisers) need to prepare the ground and decide exactly what activities are going to be performed as early as possible. To give some idea of what is meant by ‘early’ we need to remember we still have supply chain issues and even a ‘simple’ carpet has a twelve-week lead time. This is once several design iterations have been performed, and samples approved with stakeholder sign off – probably adding another four to six weeks minimum.

At ALTEA we recommend owners start the ‘process’ as early as twelve months ahead of maintenance slot for the aircraft – that is the secured input at a pre-chosen MRO. Obviously if there is a tender process for the maintenance check work with a choice of MRO and slot availability, owners need to add again to that timeline or at the very least be working in parallel during the predicted 12-month planning period. Owners will need to factor in design choices and connectivity upgrades for MROs to give accurate costs for considered decision making – no-one wants ‘extra financial surprises’, or choices to be limited, due poor preparation.

Not all MRO centres have exterior paint and paint slots are not only in high demand, but probably require the movement of the aircraft from one facility to another. This needs to be factored into the planning and of course the costs.

Touching on the maintenance side of upgrades it would be remiss not to mention that operators of aircraft with a first certificate of airworthiness issued before 7 December 2020 will need to comply by **7 June 2023** with the ADS-B Out and Mode S Enhanced requirements, provided that they established before a retrofit programme demonstrating compliance before 7 December 2020.

This all adds to the supporting mantra ‘plan properly for peak performance’ – owners, operators and advisers take note.

This uptick in the refurbishment market has spurred some supply chain OEMs, design companies, and interior manufacturers into innovative research and development to be the supplier of choice for any refurbishment project.

> Suppliers rise to the sustainable challenge

Innovation generates growth – that is certainly how several suppliers to the completion of aircraft have seen it. Rather than a top-down trickle effect from top aircraft OEMs, those suppliers with more ‘bite-size’ challenges have been busy innovating their products to differentiate what advantages they have to offer the market. This has greater focus and appeal when coupled with sustainability. There is a global demand for ‘cleaner’ ingredients to produce materials. ‘Clean’ ingredients facilitate development of smarter and more sustainable products.

As a good example of this policy look no further than F/List, the Austrian based developer and manufacturer of cabin interior products and materials. Self-declared ‘pioneers of perfection’, they certainly know how to deliver with an enviable portfolio of interiors in the Bombardier fleet. However, it is their newly launched range of bio-based sustainable materials, ‘liberating fixed characteristics of wood, stone and metal that facilitate the transformation from one form and purpose to another’, that takes the limelight. Enter the ‘shapeshifter’ concept. *“The shapeshifter concept sets the imagination free and encourages designers to do more with less in the cabin,”* says Melanie Prince, Head of Innovation for F/List. This is something the ALTEA team have always had back-of-mind for every cabin interior development, but now there are better material choices enabling such ideas to come to fruition.

2023 has the potential for many new sustainable materials to really get a foothold having had a 4-5 year run-up of research and development to meet stringent regulatory aspects. B-Comp a Swiss-based start-up has been manufacturing natural fibre composites in the sport and automotive industries for a few years. They have now teamed up with Airbus Ventures with a 35 million USD investment to bring their natural fibre composite to the aircraft cabin. Traditional carbon and glass-fibre-reinforced composites are energy-intensive to produce and use ingredients that are noxious to humans, let alone the planet. B-Comp specialise in utilising all natural materials and adhesives which give a big advantage in recycling components.

Another great example of R&D finally making some progress, widely visualised by several cabin designers over the past 2 years, was shown in Greenpoint Technologies - the Seattle-based completion centre and MRO’s - award winning VIP BBJ MAX 8 interior design, titled ‘Retreat’. Interestingly utilising OLED technology (Organic Light-Emitting Diode - a technology that uses LEDs in which the light is produced by organic molecules) for flexible floor to ceiling screen integration, This concept is not new – but consecutively, after eight years of R & D, Jet Aviation Basel completion centre announced that OLED flexible screens are now a very real possibility for integration at a ‘reasonable cost’ as seen in their 2022 VVIP completion delivery of a Boeing BBJ MAX. Whether this can be fully exploited to the extent shown on the Greenpoint concept remains an ambition for an owner to want to accomplish. It does however offer major benefits outside of just having the latest screen technology onboard. Benefits of flexible displays include being very thin, lightweight, highly rugged with greatly minimised propensity for breakage, and amenable to low-cost roll-to-roll manufacturing, in comparison to devices built with conventional rigid glass substrates. They potentially use less resources and energy to manufacture too.

> **Designers sharpen your pencils**

Here at the ALTEA design studio we have quietly gone about the business of not only dreaming up future cabin interiors with plush décor and enviable luxury, but to look at a more considered approach of utilising sustainable products and materials – they might not scream ‘luxury’ in the traditional sense, but the new luxury is simple lines and fresh material applications with sustainability credit. While detailing is eye-catching and relevant, it needs to be simply integrated and not lost in a fusion of opulence and cultural influence. This can all be delivered with a substantial sustainability ticket as suppliers go further to reach their (and the industry’s) goals into 100% sustainable flight.