



Vallair MRO facility in Chateauroux, France

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Cabin Retrofits

It's all about the passenger experience

By David Dundas

The lifespan of aircraft today, the volume of passengers carried, and the almost exponential curve of technological advancements mean that in just a few years, aircraft cabins can not just look tired, but can also lack facilities that passengers would either expect or appreciate. We wanted to find out a little bit more about these main drivers behind cabin retrofits, passenger expectations and technological advancements, so we turned to two of the leading companies in the commercial aviation sector – Panasonic Avionics and Vallair.

Panasonic Avionics, subsidiary of the Panasonic Group, has been at the forefront in the creation, development and installation of in-flight connectivity and entertainment systems, the company drawing its original inspiration from the now famous 'bullet trains' of 1970s Japan. Vallair provides integrated support for mature aircraft, engines and major

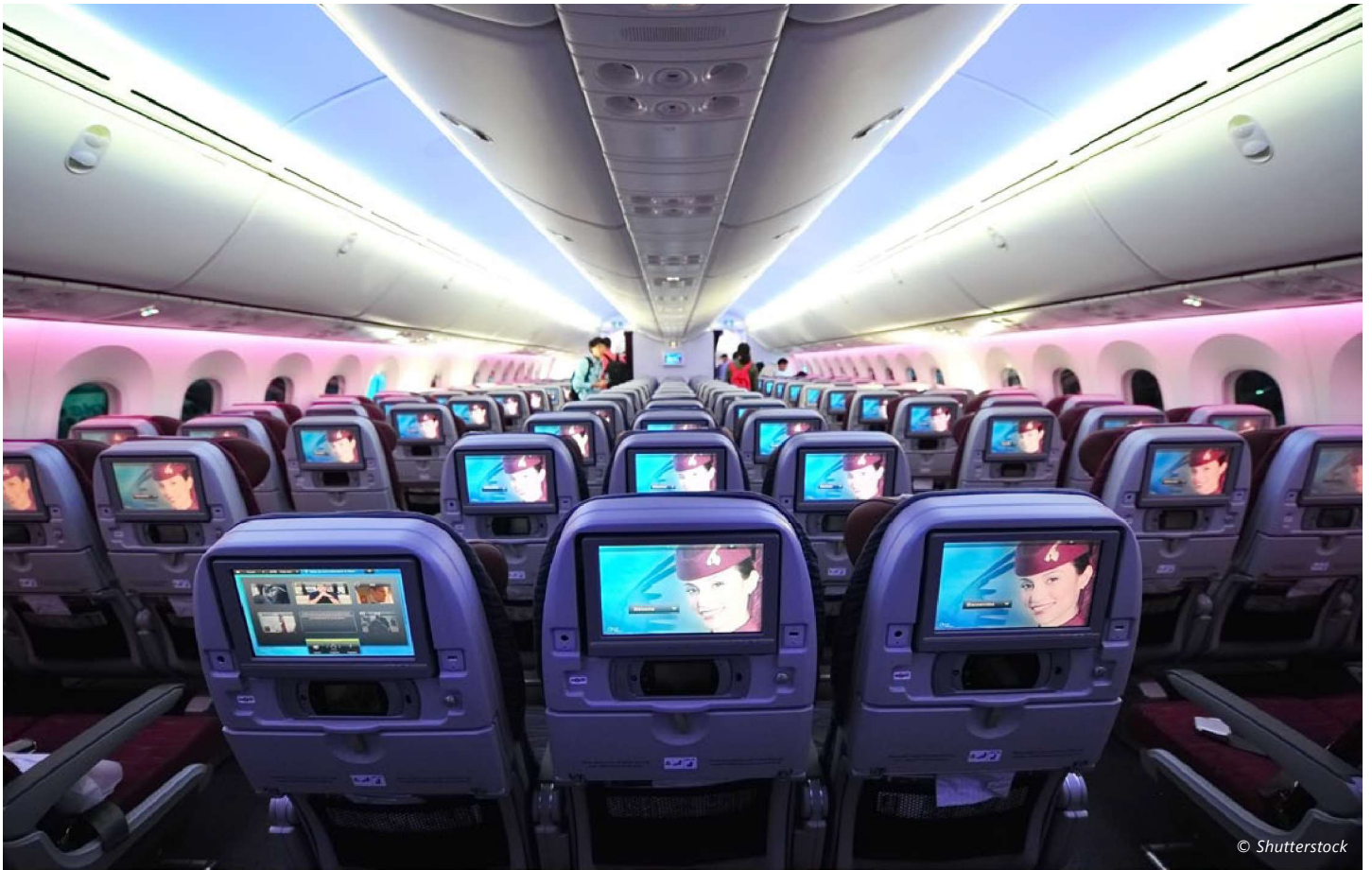
components. Its seven complementary business units are founded upon engineering excellence: trading & leasing, project management, aircraft MRO, engines, aerostructures, teardown and material management. These offer aircraft operators and owners worldwide cost-effective solutions to extend the life of their assets, or to dispose of them in an economically beneficial and environmentally acceptable way.

What the main drivers are for cabin retrofit programmes in today's aviation market

One of the trends currently being seen is airlines retaining airplanes for longer. Coming out of the pandemic, there's been a shortage of new airplanes available and ever-increasing travel demand. In this new environment, airlines now need to focus on how they differentiate their brand from their competition, and many of them

are using their cabin experience as a key differentiator and driver of net promoter scores (NPS) and loyalty.

Andy Masson, Senior VP, Product Management and Strategy at Panasonic Avionics explains further: "To that effect we are seeing a very strong demand for seatback screens. IFEC has always been an expectation in twin-aisle aircraft, but more and more we are seeing proposals for seatback screens on single-aisle aircraft like the A320, A220 or B737. Our job, as responsible partners to the world's leading airlines, is to develop systems that allow airlines the flexibility they need to respond quickly to technology trends on the ground. That's why system modularity and flexibility are one of our key tenets at Panasonic Avionics. Products like Astrova feature a modular design that enables airlines to adapt to the fast-changing market. For the first time, airlines can easily upgrade hardware and software to meet evolving passenger



expectations. Today, we are taking this approach across the portfolio of Panasonic Avionics' solutions. Using this mindset means we can help airlines keep pace with innovation while they also drive higher NPS, enhance passenger engagement, increase revenue, and deliver operational efficiencies through IFEC."

Pascal Parant, Group Chief Commercial & Marketing Officer at Vallair feels it is very important to distinguish the type of retrofit according to the aircraft type



Pascal Parant - Chief Commercial and Marketing Officer, Vallair

and the operator's profile. He goes on to advise that: "Low-cost and regional carriers tend to prioritise lighter seats to reduce fuel burn, extend range, or achieve both. A recent example is Expliseat's success with the cabin retrofit of Hop! I know Expliseat well, as I served on the board of Air Méditerranée, the launch customer for their products. On an A321, the weight saving was substantial—over 500 kg, if my memory serves me correctly - resulting in an immediate impact on payload and fuel consumption. Today, advanced materials such as titanium and carbon fibre are well mastered. Legacy airlines also seek to combine comfort, weight reduction, and the latest technologies - such as upgraded USB ports, induction charging, enhanced IFE, and improved seat comfort. In reality, a

cabin standard rarely remains competitive for more than ten years. Vallair is also seeing the development of long-haul services using the A321neo and certain 737 MAX variants. These require retrofits to meet current standards, including IFE, lie-flat seats in business class, and multiple power outlets for laptops, tablets, and mobile devices. On long-haul routes, competition is fierce to offer the most advanced product. We've seen Air France launch its new first-class suite, as well as numerous business-class refurbishments introducing 1-2-1 layouts, mini-suites, and the latest IFE features, including personal headset pairing. As these features become the norm, airlines must upgrade their cabins to remain competitive and attract high-revenue passengers."

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Pascal Parant, Group Chief Commercial & Marketing Officer, Vallair

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How passenger expectations are shaping cabin retrofit decisions

Given that an aircraft may remain in service for up to 24 years, Vallair predicts that the company could soon see four major cabin retrofits in its lifetime and that it may even become standard to undertake a full cabin upgrade during every six-year maintenance check. “The marketing and customer experience teams of legacy carriers are doing an exceptional job in analysing and anticipating passenger expectations. Privacy, personal space, lie-flat seats, connectivity, Wi-Fi, and Bluetooth have become essential features. Technology evolves quickly, and cabins have effectively become a consumable asset, replaced every 6 to 10 years. The faster technology advances, the higher passenger expectations become - and the more frequent cabin retrofits will be,” Pascal Parant tells us. According to Andy Masson, “Passengers today are far more tech savvy, and they demand experiences like home theatre engagement and ubiquitous connectivity. Experiences like social media and on-demand media continues to dramatically increase the demand for the latest in tech and a personalized digital experience.”

Emerging technologies (e.g., lighting, connectivity, seating) that are most requested in retrofit projects

Connectivity would appear to be a key issue identified by both Andy Masson and Pascal Parant, but it is not the only issue. “Some of the most prevalent demands we see from our data shows that things like low-latency high-speed reliable connectivity, high-fidelity 4K OLED monitors, Bluetooth Audio, OTT media and personalization are in very high demand from passengers,” advises Masson. Meanwhile, Parant sees that there are three main technologies that are in demand,

including: “Lighting: Adaptive LED mood lighting is now expected on every flight. While not new, it has become a passenger standard. Connectivity: Bluetooth pairing between In-Flight Entertainment (IFE) systems and personal headsets is now being implemented. Seating: More personal space, fully lie-flat seats, enhanced mattress padding - these features continue to evolve rapidly.”

Some of the main technical challenges in retrofitting older aircraft

Once again Pascal Parant and Andy Masson are in accord when they pinpoint in-flight entertainment systems. As Masson puts it: “I think it goes back to system modularity. Older airplanes with legacy IFE systems are not easily or economically upgradeable. This restricts airlines from rolling out the latest software and media. Products like Astrova have addressed this because they are architected to be easily upgradable and can evolve, along with software, to allow a true personalized digital experience, that aligns with what airlines are delivering, in real time, via their web and mobile channels.” Meanwhile Parant sees two additional problems beyond legacy IFE systems: “IFE remains one of the major challenges, along with Layout of Passenger Accommodation (LOPA) certification. Many IFE systems are becoming obsolete, and on widebody aircraft, even basic functions such as lighting and call buttons are integrated into the IFE. Replacing these systems involves considerable cost and complexity. Supply chain constraints are another significant issue. Securing new seats or IFE systems for a retrofit can take 6–8 months or more, making forward planning essential. Durability is also a concern. While lighter materials are desirable, they can accelerate wear and tear. Narrower aisles in mini-suite concepts lead to more frequent damage from catering trolleys and passenger luggage. Manufacturers therefore need to



Andy Masson, Senior VP, Product Management and Strategy at Panasonic Avionics

develop more resilient materials without increasing weight,” he tells us

Where the biggest trends in cabin retrofits are likely to be over the next five to ten years

Unsurprisingly, Andy Masson at Panasonic Avionics focuses on connectivity issues. “It starts, obviously, with higher speed, low latency connectivity. However, we also see a dramatic increase in demand for high-powered seat back screens that are connected via LEO connectivity. We also see demand for a much wider media selection with content that is constantly updated over the air to meet passenger demand. And finally, airlines really want a far more personalized and digital experience for each passenger,” he explains. However, Pascal Parant at Vallair is more focused on higher-paying passengers. “We will see more suite concepts in business class and increasingly ambitious offerings in first class, which remains the flagship product for certain airlines. Narrow-body aircraft will move towards even lighter seating to optimise efficiency,” he tells us. He then goes further: “At Vallair we see two main drivers: Technological evolution - particularly in IFE and connectivity. Passengers may increasingly choose to watch content on their own devices rather than seatback screens. Satellite internet solutions like Starlink could be a game-changer. Product innovation competition - legacy carriers will continue to compete aggressively in business and first class to remain at the forefront of comfort, design, and technological standards.”