By Rick Scarborough

NAVIGATING THE LANDSCAPE OF A CORPORATE AVIATION CABIN REFURB

Duncan Aviation image.

Par Avion says customer relationships must be actively managed and emphasizes they try to meet the needs of the individual or corporate investor by being readily accessible and by bringing value-added support to the customer. Par Avion image.

Have you ever wondered how it would be to fly like a king? One lucky person had a chance to find out. On January 8, 2023, an anonymous bidder ponied up $260,000 for a 1962 Lockheed 1329 JetStar. This was not just any JetStar. This treasure once belonged to the King of Rock & Roll, Elvis Presley. One peek inside is like being sucked into a 1970s vortex of opulence and luxury. Elvis spared no expense when speccing out the cabin of his last private jet. Red velvet chairs enveloped passengers as they ran their toes across matching red shag carpet. Guests could plug into headphone ports with audio controls and dispense their cigar ash into gold-plated ashtrays. Someone turns on the wall-mounted television and drinks are served from the galley, which also has a Kenmore microwave.

The Lockheed JetStar introduced the world to the corporate jet in 1957. Presley's '62 model likely began flying upper managers back and forth to meetings and treating executives to golf outings on the weekend. They relaxed in tan leather seats and drank scotch from crystal glasses. While visiting airports with my dad in the 1970s and '80s, all the private jets carried the same aesthetic: non-descript white fuselage, analog cockpits and tan interiors. The King was not having it. As new owners tend to do, Elvis put his stamp on this airplane.

All right, maintainers, listen up; this is for you. At some point in your career, a corporate jet owner will approach you in the hangar and say, "You know, NOU812 is going down for a gear replacement in June. I have been thinking about upgrading the cabin, and this looks like a good time to accomplish that. Get me some estimates, and I will think about it." Congratulations, life just threw you a curve ball. Don't sweat it, though; we have people who can help. I have scoured the country looking for some of the best and brightest to formulate a plan and for the new technology available now, which is mind-blowing. Let's get into it.

Plan of Attack

Before we begin, you need to understand the magnitude of business aircraft interior refurbishment. Why is this important? Let's break down the numbers with Fortune Business Insights, which recently stated that "the global business jet market size is anticipated to grow from $45.9 billion in 2024 to $66.97 billion by 2032, at a CAGR of 5.4%." Concerning the aftermarket, Fortune highlights that "fleet modernization programs by developed and emerging economies are anticipated to improve fleet capabilities and generate demand for new charter services with enhanced cabin interiors." Cabin interiors are big business.

You will need a plan. Start with the client in mind. Remember that the jet owner and guests spend most of their time here. Sure, they will take a cursory look at the engines and may glance at the new flat-screen avionics in the cockpit, but the cabin is how they connect with their airplane. What do they want? I recently caught up with Janine Iannarelli, owner of Par Avion Ltd., an international aircraft marketing firm specializing in representing and acquiring pre-owned business jets. We discussed what aircraft owners today expect of their cabin layouts and amenities. She states that "updated cabin management systems [CMS] are a game changer. Especially among legacy aircraft, when entertainment systems become antiquated, it is not as simple as a plug-and-play solution for monitors, etc. Compatibility is the problem and migration to a newer generation

Elliott's Meghan Welch says giving their clients an overview of the entire refurbishment process helps them understand the level of detail that is involved in designing, planning and fabricating a successful and functional aircraft interior. Elliott Aviation images.

CMS is more and more becoming the only solution."

Sounds easy, huh? With a solid game plan, sufficient resources and maybe a little luck, you can satisfy the owner and not break the bank. Steve Martinez owns Aircraft Custom Interiors (ACI) in Dallas, Texas. Three miles west of Love Field (DAL). He and I recently connected and I asked him about managing an aircraft interior business. "Everything starts with an idea," Martinez says. "Our job is to capture the owner's idea and form that into a workable plan." This typically begins about six months before the first panel is popped off the sidewall.

Meghan Welch, director of paint and interior sales at Elliott Aviation, echoes that sentiment. "Everything centers on the client relationship." This week, she and I spoke for a few minutes about the customer experience, and she offered the following insight: "At Elliott Aviation, we go the extra mile to please the customer. I like to have them visit the Moline, Illinois, facility and get to the heart of their wants and needs." In fact, she was hosting a client onsite the day after our meeting.

Third-party options are great, but only one source will do for some: the factory.

Textron has OEM solutions for overhauling your cabin. When asked about their offerings, Textron replied, "Our company-owned service centers offer factory-designed and engineered interior refurbishments and retrofits to meet the needs of our customers. Popular modifications include custom seating arrangements tailored to the owner's preferences and LED lighting enhancements that create the perfect ambiance or ensure easy reading. These updates are often seamlessly integrated during major inspections or comprehensive avionics upgrades like the G5000 or Fusion installation." With cabin MRO options, money and time, nothing is impossible.

Emerging Trends

Corporate aviation is constantly evolving. One of the most important advancements in emerging trends is connectivity. When I spoke with Textron, here is what they had to say: "Cabin connectivity. We understand the importance of staying connected to keep your business moving and turn the sky into your office. In today's digital age, keeping devices charged is also essential. That's why we have incorporated high-power USB charging ports into our aircraft and refurbishment options. Productivity and availability are at the forefront when you tap into the air-to-ground capability of Wi-Fi and satellite upgrades from our experts."

Here are just a few of the connectivity upgrades Textron offers:

- Gogo AVANCE
- SmartSky Flagship
- Airtext+ Cabin Connectivity

At altitude, much of what happens in the cabin is dictated by equipment mounted outside on the aircraft fuselage, and that space is also evolving. Let's just say there are new tools that allow E.T. to phone home and get a clearer signal. Dave Mellin is the director of public relations and communications for Gogo Business Aviation. Mellin was kind enough to chat with me and bring me up to speed on the latest aircraft connectivity. This is the tale of two

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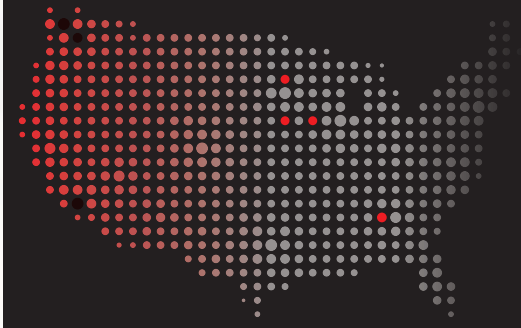

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satellite systems, old school geostationary (GEO) versus the new kid on the block low earth orbit (LEO).

GEO networks rely on satellites orbiting between 22K and 25K miles. Connecting to the network involves expensive heavy equipment traditionally found on the bigger corporate jets. It is limited by distance and is prone to latency and delay.

LEO systems operate 500 to 750 miles from Earth, which helps minimize the delay. Aircraft can deploy a smaller antenna and operate with smaller systems. The solid-state antenna has no moving parts. Until now, if you wanted in-flight connectivity, you had to compromise based on the aircraft size.

OEM Textron Aviation says their service centers offer modifications including custom seating arrangements tailored to the owner's preferences and LED lighting enhancements that can be seamlessly integrated during major inspections or comprehensive avionics upgrades. Textron Aviation image.

Gogo's LEO global broadband experience uses the OneWeb satellite network and is designed specifically for business aviation. AVANCE is Gogo's in-flight connectivity system. The website states: "Gogo AVANCE is not a traditional LRU. It's a platform. An easy way to understand AVANCE is to think of it like you do Apple. Like Apple and its iOS: the value of the AVANCE platform comes not only from its features, but from its ability to be the central technology that connects to and grows with other tools, innovations, products, and services." To sum it up, Mellin says the "AVANCE platform future-proofs your aircraft."

Starlink is an emerging technology that delivers high-speed, low-latency internet access to passengers in flight. They are expanding their supported airframes and going to market through authorized dealers. Starlink's Laser Mesh Network provides continuous service in areas far from SpaceX ground stations, including polar regions and the open ocean.

One of Starlink's dealers is Duncan Aviation, the world's largest privately owned business jet service provider. I fondly recall doing business with Duncan during my stint as a Rotable Exchange Coordinator at Professional Aviation Associates and then as a business owner at Aviation Enterprises, LLC. Last month, Duncan reported installing the company's first Starlink in-flight internet connectivity system. Work on the Bombardier GL-XRS went smoothly; the Starlink fired right up, and the client "streamed three movies simultaneously and Facetimed with his wife." The team accomplished the STC job in less than three weeks.

Corporate jet travel is an experience. In the decades since the events of September 11, 2001, commercial air travel has become a bit circus-like. Those with a substantial net worth are immune from such craziness, and rightfully so. Corporations use business jets to move executives, clients, and guests smoothly and efficiently. Time is money, and an hour lost standing in the TSA line is an hour lost closing a big deal. While corporate travel is a step above commercial, truly elite travel is on another level altogether. In this world, luxury is a way of life. Some of you have clients at this level and know precisely what I'm referring to.

Mindy Elizalde is the marketing director of luxury interior specialist Primadonna. Headquartered in Tucson, Arizona, Primadonna is an approved vendor for Gulfstream, allowing clients to upgrade mattress and bedding options. Primadonna's recent acquisition of SJ Lipkins enables the company to offer a more robust product offering, and the Lipkins cabinet solutions integrate with Primadonna's flatware and fine china. Lipkins' signature line is its Cloudstone countertops. The company states they are "lightweight yet durable, solid yet flexible."

F. LIST (F/LIST) from Thomasberg in Lower Austria, is a global interior supplier for business and private jets. They are expanding the horizon for interior spaces, including dynamic designs using sustainable materials. CEO Katharina List-Nagl recently stated, "For F/LIST, sustainability is at the heart of everything we do as a company, be it in terms of our processes, people, or the products themselves. It is almost impossible to think about a new product or service without considering sustainability." In late 2023, Pilatus Aircraft Ltd. presented the first use of the bio-based material F/LAB Aenigma in the cabin of a business aircraft. A portion of the F/LIST press release states, "Inspired by F/LIST Shapeshifter, the F/LAB Aenigma opens a new chapter in aerospace materials, presenting an ingenious blend of cutting-edge technology and environmental responsibility." Innovative companies like Pilatus Aircraft and F/LIST continue to push the industry forward.

Best Practices

Many elements drive the decision to gut the cabin of a corporate jet completely. One such element is a major maintenance event. Maintenance crews often need access to control cables, tubing, or components under the cabin floor or the sidewall. Wiring bundles, torque tubes, and all sorts of mechanical shenanigans are going on, safely tucked away from passengers and crew. When one of those components needs attention, everything in its way is coming out. Now seems a good time to update the cabin. The aircraft is down regardless, and the major maintenance covers most of the labor. Much like the advice I gave my engine shop customers during a sudden stoppage inspection, consider bumping up to an overhaul while insurance covers the labor if your engine has significant time on it.

Let's head back to Lincoln and talk to Duncan Aviation again. It takes a team to navigate today's business challenges, and one only gets there by deploying the best practices gleaned from years of effort. I had the pleasure of connecting with two of their

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Austrian company F. LIST showcases their dynamic designs and commitment to sustainability in their elegant design facility that they refer to as futurelab or F/LAB. Their design hub is a place for creative thinking, collaboration and experimentation. "It is a place of disruption where we visualize our customers' world and transform alternative concepts into reality," the company says. F/LIST image.

refurbishment team, Steve Elofson and George Bajo, to discuss those challenges and how to overcome them. We learned that aircraft connectivity is at the top of many owners' want lists when planning their new cabin design. Understanding how clients use their aircraft and tailoring a solution to fit that need is mission-critical.

When discussing building the service order, Elofson offered the following:

1. Ask the client where they wish to operate the aircraft. Is their intention to travel outside of the USA? Gogo is now using an air-to-ground (ATG) system, which is very cost-competitive and has good coverage in Canada and Alaska as well.
2. Determine what the client's operating budget is. Duncan will quote a price for the physical hardware and installation labor, but the client must deal directly with the service providers for the monthly coverage. Each is different and has its pros and cons, such as satellite or unlimited data.
3. Cabin management systems (CMS) upgrades are typically tied to maintenance events, such as heavy checks, engine work, or avionics upgrades. If the crew has to access under the floor or sidewall, the interior seats, panels, and components are coming out anyway.

Once maintenance is in motion, it is imperative to remember that documentation and communication drive facilitation. I asked Bajo about how Duncan best manages this process. He stated that everything downstream is managed by a change order. If the maintenance technicians discover an issue, they document the squawk immediately. This applies to both airworthy and unairworthy conditions. These issues could be minor, like a cosmetic blemish that requires the owner's attention or as serious as a crack in an aluminum structural component. These findings are posted on findings on the myDuncan website. There, clients may gain additional intel, view photographs of the affected area, and even approve the quote to keep maintenance in motion. This is invaluable as without approval to proceed, some maintenance activity halts. This could impact the lead time on delivering the aircraft. I would oftentimes have to remind my clients at the engine shop that the lead time begins and the time of approval is not the quote date. Duncan has an advantage because of its extensive capabilities; most needed solutions are in-house. Additionally, they deploy a vast arsenal of TSO, STC, PMA, and DER repairs for compliance. This is critical to remember, as deployment can be immediate for off-the-shelf products with approvals in place. If the client requires a custom solution that has yet to be approved, there will be an additional lead time until that happens. Even coffee pots carry FAA PMA approval.

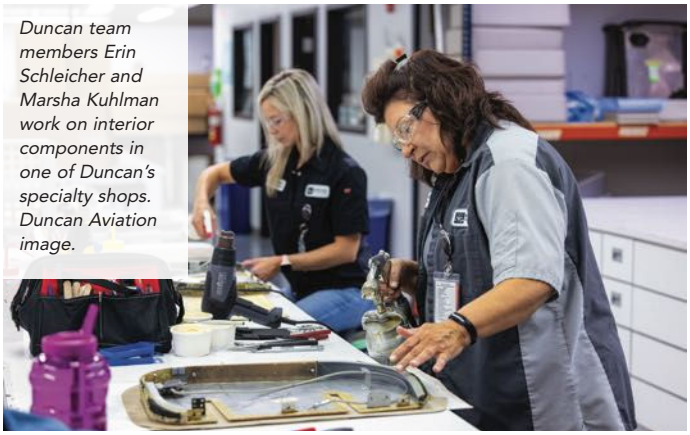
Some aircraft owners are plugged into the latest bleeding-edge technology for their specific platform. Again, I recall my engine

Duncan Aviation is the largest privately owned business jet service provider in the world and offers complete MRO services it says are designed to help business aircraft operators get the most value from their aircraft ownership. Shown here is Duncan's Jevon Payne finishing seats with high-end leather upholstery. Duncan Aviation image.

shop days when owners would hit me with new whizbang gadgets they read about on a blog post and want me to quote them on working that into their engine overhaul. Unfortunately, I had to break it to them, saying that their engine would lose its certified status unless new technology had FAA approval. Steve and I talked about this as well. He offered the following thoughts. You have to educate yourself to talk with the client about upgrade options. We spoke earlier about emerging technologies, like cabin power. Power outlets at seat locations can now accommodate USB, USBC, and MagSafe wireless charging. Lighting elements can set the mood for the cabin, cool vs warm. 4K display is now a reality. Passengers can consume content stored on their devices or stream it via apps on their devices. The newer technology allows for the use of cabin controls via an iPad with minimal lag.

Bajo and I finished up the conversation with the single most important factor to remember for maintenance providers when managing a cabin interior refurbishment project. He called it: "Get ahead of the jet." With aerospace supply chain lead times as they are, staying ahead of the game is essential. DOMs track aircraft times and cycles like their life depends on it because it does! It is imperative to know what is coming down the line. Engines, landing gear, and other aircraft components require service at specific flights/times/cycles. By working ahead of the jet, you can advise the owner of when would be an excellent time to set the aircraft down for refurbishment. The time to pick out seat color and material is NOT when they are pulling the seats out. Settle that well in advance.

I closed my research with James Logue, the director of maintenance for Latitude 33 Aviation in Carlsbad, California. We reminisced about the days when business jets were limited to basic Falcon 20s with tan interiors. When the private owner or corporation finished with them, they went to other countries or spent the rest of their days hauling checks. "Things are different these days," Logue began. "A few years ago, a 15+ year old aircraft would probably finish its life out with the interior it currently had. There was not an ROI to support a full interior refurbishment." Now that private travel is on the rise, and there is insufficient inventory to meet those needs, older aircraft are holding their value longer. "And now, it makes sense to refresh the cabin," Logue continues, "and with much of the older factory installed components obsolete, it is necessary to bring the cabin current." When asked about the decision-making process, Logue says, "The aircraft mission drives the decision." It is critical to understand how the client will use the airplane and plan accordingly. If you want a deeper dive, check out the Lattitude 33 Aviation article 'A Guide to Aircraft Interior Refurbishment.' AVM



Duncan team members Erin Schleicher and Marsha Kuhlman work on interior components in one of Duncan's specialty shops. Duncan Aviation image.