

Aircraft

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CABIN

Perfecting the passenger experience

Management



CHAIN REACTION

How To Build Back Better

IN THE COMFORT ZONE

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Post-pandemic expectations are forcing the industry to think again

SATCOM CONNECTIVITY

How are satcom service providers plotting their technology roadmaps?



SUPPLY IN DEMAND

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Servicing the aftermarket and ambitious aircraft production rates look set to place huge pressure on the cabin interiors industry. Aircraft Cabin Management's Aimée Turner examines how the appetite for innovation will be best fulfilled

Tom Williams, the one-time chief operations officer of Airbus, once joked that the European airframer's fortunes were hostage to the smallest link in the supply chain, the manufacturer of the most humble part like the toilet door – but without which the aircraft cannot fly. It was contingent on the one-man band working in a garage with only his pet dog for company. Should the dog get sick, the guy in the overall would fail to make even the simplest part that day.

As Nathan Kwok, an executive vice president of Safran Cabin, pointed out

at an industry event this summer, there are a million and one parts of an aircraft but it only takes one part to be missing for the aircraft not to deliver. He outlined the supplier's dilemma: "It's like trying to hit a bullseye. You have to plan for the forecast rates which will be at the top of the range which is the stable part of the demand – and then you have to plan for the unstable part – the aftermarket uncertainties." He drew an analogy of Forrest Gump's box of chocolates in that, often as a supplier, 'you never know what you're going to get'.

"There are an infinite number of permutations in terms of meeting the true demand needs and you have to surf through all the layers of the supply chain

to find the particular points of failure," he said, adding that the challenge is to factor in the mix of an airframer's customer base and the likely aftermarket demand profile before attempting to develop a capacity plan to fall back on – one that takes into account what could go wrong without 'over-capacitising' and risking going bankrupt. Kwok admitted however that not every supplier has the resources to draw up such highly sophisticated industrial plans which allow for the appropriate levels of back-up capacity.

The current global landscape for manufacturing logistics and staffing is more challenging than ever across all industries, including aviation. Airbus' ambition to produce 75 A320 aircraft



every month over the next three years is a hugely ambitious case in point, representing as it does a 66 per cent increase of aircraft currently rolling off the factory line.

With commercial aircraft operations returning faster than any could have predicted, the rate of increase in orders for both original equipment and aftermarket components has waterfalled swiftly down to the sub-tier supplier.

Many parts of the cabin supply chain have certainly had to pivot during the pandemic, being forced to rebuild their infrastructures to support increasing costs and workforce requirements while trying to maintain on time shipments and minimum order quantities.

For Jeff Luedeke and Gary Weissel of Tronos Aviation Consulting the ongoing post-pandemic troubles have been compounded by the uncertainties surrounding the worldwide grounding of the Boeing 737 Max in March 2019. Despite attempts by the US airframer Boeing to shore up its supplier base, when production looked likely to shut down for a protracted period, the aircraft's suppliers had to move fast to trim capacity.

"Everything starts with forecasts," Luedeke says, "and when you don't have a forecast, the suppliers of raw materials will deplete stock. You also had early retirements or people who just left the industry faster than was expected. Now that we have the forecasts, with orders being placed, you are seeing a struggle to get raw material production back up to the required levels and, from highly



technically skilled people down to entry level, finding labour, especially in the United States, is a real struggle."

Then came the pandemic in 2020 which saw the aftermarket for interiors completely collapse and forced many suppliers to cut up to 50 per cent of their staff, shutter factories and consolidate production facilities. "People simply went into survival mode," says Weissel.

Despite the best efforts of airframers to ramp back up, Weissel guesses that even now forecasts will fall quite a way short of reality. From the supplier's perspective, that lack of accuracy may express itself in a lack of confidence in the marketplace.

Weissel, an expert in aircraft interiors programme management, says, "Recently we have started to see suppliers begin to have a more inward view, as in asking themselves 'Can we deliver?' and 'Let's be careful about what we are committing to'. Lately, Weissel has noted leading seat suppliers failing to bid on new business: "We're guessing it will either be an internal issue with their own supply chain or with labour."

THE CURRENT GLOBAL LANDSCAPE IS MORE CHALLENGING THAN EVER ACROSS ALL INDUSTRIES

Has the pain been shared equally across the cabin interiors industry? Luedeke reports that the MRO side has been less impacted and that last summer, when aircraft started flying, business came back very quickly. "The new part of production was harder hit," he says, "not just for linefit for Airbus and Boeing but also for new seats, new galleys, new lavatories going into retrofit programmes. Those programmes have restarted, that's for sure but we're nowhere near where we were pre-pandemic."

That's due to a number of reasons, Weissel reports. Most importantly, interiors generally constitute discretionary spending and a cash-strapped airline is not going to reconfigure its aircraft when it cannot afford to. "They can live for a very long time with a slightly substandard configuration," Weissel says, adding that the retrofit wholesale market, sizeable as it is, won't make a reappearance any time soon until multiple strong quarters of airline financials return.

Supply chain optimisation

The highlight of this year's Aircraft Interiors Expo (AIX) show in Hamburg was undoubtedly the industry coming together after such a long time. And, with people coming back together so too does the demand to travel and order books to fill. So what is the current status of the aircraft cabin supply industry and how are best practitioners adapting to the challenge?

Ben Smalley, aviation business development manager at advanced materials business Sekisui Kydex, arguably speaks for the whole industry

1. Thompson Aero Seating has debuted the VantageDuo concept
2. Kydex RCL is fulfilling a renewed interest in sustainable products
3. STG's Universal Lighting system can be used in a broad range of OEM applications



BUSINESSES HAVE BEEN DRIVEN RIGHT BACK TO FIRST PRINCIPLES

when he says that these challenges will continue as aviation returns and ‘will require original equipment manufacturers (OEM) to forecast and communicate their ramp up early to allow suppliers to proactively prepare rather than react’.

Pre-pandemic, OEMs were reacting to ‘just-in-time’ inventory strategies. It was all about moving parts quickly between North America and Europe, according to Sohaib Ahmed, programme manager, interiors at AJW, who says that this was fine when supply chains were

replete with components, but when persistent shortages arose – as was the case with semiconductors – the rhythm was interrupted.

Aviation supply chain integrators such as AJW Group, says Ahmed, have reorganised themselves to endure lower volumes. The result is the business’s effort to bake in unprecedented levels of efficiency to satisfy customer demand. “In turn, this has driven an increase in supply chain digitalisation and led businesses right back to first principles in re-crafting how they need to operate,” he says.

AJW Technique Interiors exhibited at this year’s Aircraft Interiors Expo in Hamburg for the first time, showcasing its fully tailored solutions for cabin interior needs and the design development and production of replacement seat covers using the advanced synthetic leather SkyLeather.

In terms of supply chain optimisation, Martin McGuinness, head of supply chain development at Thompson Aero Seating, says that supplies constrained on a global basis and ever-increasing lead times has forced the business to review its local supply chains to assess capability and suitability for rapid response to standardised programmes, while taking a risk-based approach to low cost sourcing options further afield.

“Cutting the shipping time of items that are frequently required makes business sense and is also positive in supporting other companies within its own region, something that is important to Northern Ireland-based Thompson Aero Seating,” he says.

Managing costs

A fragile supply chain can also lead to spiralling costs, as AJW’s Ahmed notes. Pre-pandemic lead-times of between 2-4 weeks have doubled to 8-10 weeks at times, which has dramatically affected project lead-times with escalating prices seeing the cost of hard materials, including raw leather, etc, tripling in some instances. It is also not just an issue of sourcing materials but regulatory aspects can further add to the supply chain cost burden.

“The process of procuring replacement seat covers is a notoriously lengthy process due to design and technical approvals, flammability and combination burns testing,” Ahmed explains. “As such, by the time the approvals are finalised, which often takes over four weeks, the price of material has changed due to



1. AJW Group has reorganised itself to endure lower volumes

2. The designers and engineers who created the VantageDuo started from scratch with a blank sheet of paper



ALONGSIDE SUPPLY CHAIN DELAY ISSUES, COSTS ARE INCREASING ACROSS ALL CATEGORIES

the shortage and demand of raw materials, and the inflated price of leather.”

Thompson's McGuinness agrees that along with delays across the supply chain, costs are increasing in all categories. “This adds pressure to each programme and to the distribution network,” he says. This pressure has seen the business rely heavily on forecasting to achieve optimum batch-sizing and vendor-managed inventory policies. Introducing service-level agreements and long-term contracts with strategic partners has also enabled Thompson to provide visibility and commitment across various programmes.

Managing capacity

Constraints in capacity are leading to longer demonstrated lead times and supplier performance issues. With the entire supply chain now pushing to increase

material output, at different rates of recovery, OEMs need to have invested early in supply chain risk mitigation, according to Sean Padfield, senior vice president, aerospace at Schroth Safety Products.

“Earlier this year, Schroth opened its new Fort Lauderdale facility with increased operational capacity,” Padfield reports. “Their enhanced ability to absorb surges in sub-tier material deliveries with increased available stock levels is mitigating their OEM risk of material bottlenecks impacting customer delivery commitments.”

Thompson's McGuinness adds that his business has introduced a watch tower process to ensure suppliers are not overloaded with excess demand. He says this offers the supplier the best opportunity to meet their quoted lead times and a proactive balance of capacity versus demand. “An improved supplier relationship-management process enhances the connection with key suppliers and allows for more effective, efficient, open, and collaborative communication,” he explains.

Another elephant in the cabin is the whole issue of recruiting and retaining a world class workforce. “Supply chain shortages are not just linked to semi-conductors, repair capacity or the dramatic reduction in air freight capacity,” says AJW's Ahmad, “they also extend to human resources.”

Work-life balance

He reckons there has been a significant reappraisal across the labour market, with individuals rescoping their lives, rejecting the once-accepted commute, as people search for an improved work-life balance. There has also been a minor shift of staff out of aviation into less volatile sectors, placing even further strain on a limited talent pool.

With 100 patents to its name, innovation is central to STG Aerospace strategy which made several important product launches throughout

↑
Aerena – AerQ's platform for digital engagement – can offer airlines an opportunity to shorten their own digital supply chains

100

▲
With 100 patents to its name, innovation is central to STG Aerospace strategy which made several important product launches at this year's Aircraft Interiors Expo

- 1. Infused Imaging is an award-winning, proprietary process that embeds imagery into Kydex Thermoplastics
- 2. Schroth's new Fort Lauderdale facility has increased operational capacity



COMPANIES THAT REORGANISED WILL HAVE AN ADVANTAGE OVER THOSE WHO SIMPLY SURVIVED

this year's Aircraft Interiors Expo, including the world's first blue glowing photoluminescent emergency floor path marking system. Pierre Michard, STG director of sales & programmes, believes that the aerospace sector remains an attractive one to anyone interested in technology and the exciting innovation aspect of aerospace. "The key skill we are looking for beyond technical competence is curiosity," he says. "We need all our designers to be inquisitive, as well as technical – the two together are the magic formula."

Ahead of the curve

So how does a cabin interiors business maintain its competitive edge through innovation in such turbulent times?

Kydex's Smalley believes that companies that reorganised during the pandemic – investing in manufacturing automation, research and innovation and workforce development – will have an advantage over those who simply survived. "This will lead to exciting innovations as the industry rebounds," he says. Kydex itself showcased its innovative Infused Imaging at this year's Aircraft Interiors Expo, a Crystal Cabin Award-winning, proprietary process that embeds imagery.

Verena Bintaro at AerQ, says long supply chains can hinder the implementation of innovation but that digital tools such as Aerenia – AerQ's platform for digital engagement – can actually offer airlines an opportunity to shorten their own digital supply chains for new applications and media content onboard the aircraft. "Airlines benefit from time and cost savings due to simpler and faster operational workflows in development, testing and deployment of applications and content," she says.

Thompson Aero Seating also created a stir at Hamburg this year with a brand-new long-range single-aisle seating concept, the VantageDuo which started from scratch with a blank sheet of paper. Staying ahead of the curve is vital but so is collaboration, says McGuinness: "The design team and the supply chain team work closely together so that both can stay ahead of the trends," he says. "Knowing what new materials are likely to be needed, what the customer wants, and how design and engineering is evolving, allows the supply chain to lead with planning and forecasting."

Smalley certainly agrees with the need to be responsive to customer concerns such as the rising relevance of sustainability.

"The key to accomplishing this is early collaboration among the supply chain including OEMs, designers, engineers, and cross industry experts," he says, pointing to Kydex's move to recycle thermoplastics for aviation interiors.

Showcase opportunity

The importance of industry events such as the Aircraft Interiors Expo cannot be underestimated for those bringing innovation to market as AerQ's Bintaro notes, in so much as they represent a vital showcase for products that not only meet but also anticipate their potential customer's needs. "The business's contact with airlines, at this year's AIX and beyond," she says, "has demonstrated that airlines are realising that the digitalisation of their cabins is a crucial factor in implementing their own new business models and to create a competitive edge."

STG Aerospace's Michard certainly remains committed. Following the acquisition of STG by Head-Up Technologies, the business is now planning for next year's show, leveraging the experience of both teams. "AIX is the best opportunity to showcase our innovations and capabilities to customers and the industry as a whole," he says. ©

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