



**Stock-in trade:** AJW Group has built its own in-house inventory modelling programme, designed to optimise customers' stock holding.

# Keeping chains strong and flexible

**An efficient supply chain is vital to an airline, so how can they ensure that parts are where they are needed when they are needed. Bernie Baldwin discusses the challenge with several parts providers.**

**“Y**ou are the weakest link. Goodbye!” This dismissive phrase has been uttered many times by TV game show hosts on the quiz predicated on the notion that, overwhelmingly, a chain is only as strong as its weakest link.

In the airline industry, being the weak link can cost considerable amounts of money when a part is not available.

This is why parts suppliers, in particular, have used IT and logistics specialists to develop very sophisticated – and strong – supply chains to ensure that minimum equipment lists (MELs) are maintained. The first task is for the operator and supplier is to define the minimum on-site stock requirement and how to avoid overstocking because that simply ties up capital.

Farsound Aviation's Group Sales Director, Lee Kelsey, says his company takes time to

assess a customer's needs. “We know that ‘one size doesn't fit all’, and we have to tailor what we do,” he notes. “From the initial meetings, we will gather all the information and review this against the data we have and apply our 30 years of experience. From here, we will define the annual monthly usage (AMU) to determine what parts compose the right stock to support the customer. We are extremely confident in our processes because our On Time In Full (OTIF) is >98% while keeping stock levels at a minimum.”

According to Pascal Parant, Vice-President of Marketing at AAR, inventory management – namely keeping the MEL at the levels needed – is one of the three pillars of successful component control, together with repair control and the supply chain. “The supply chain ensures you have the item at

the right place at the right time and return core units in the agreed time. Repair management makes the bottom line, and inventory management makes the financial success,” Parant explains. “Insufficient inventory leads to non-compliance with the service level. It has, for example, a significant impact in Europe where EU261 penalises airline delays of two hours.

“So, airlines and service providers need to have a robust, efficient tool that calculates inventory allowing effective solutions between monetary cost, the cost of operation and penalties to customers,” he continues. “Artificial intelligence (AI) is growing in operation mainly for latest technology aircraft. But current and mature-generation models still rely on a combination of human expertise and data analysis.

“MROs and airlines often still use their own tailored tools plus inventory experts to determine inventory needs. In the recent pandemic situation, inventory optimisation has been a key differentiator to ensure limited impact on the airlines. We have seen a lot of inventory used without replenishment, waiting for a better time to spend cash in repairs,” Parant observes.

The AAR VP has a kindred spirit in Daniel Adamski, Executive Vice-President – Distribution at Kellstrom Aerospace, who also believes that inventory management can be a tricky proposition for airlines, MROs and OEMs as they seek balance sheet relief in an unpredictable market. “If airlines, MROs and OEMs all endeavour to hold less inventory on their books to conserve cash, an effective inventory solution must exist to address material demand and cater to the needs of the aftermarket,” he comments.

“This is where OEMs with an effective aftermarket distribution channel partner like Kellstrom Aerospace find a solution for level-loading their production and accelerating their revenue recognition without the need to hold inventory themselves,” Adamski adds. “[Right now], airlines and MROs are holding less inventory to conserve cash, which requires better >>>

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**Daniel Adamski, Executive Vice-President – Distribution, Kellstrom Aerospace**



advance planning. In the case of Kellstrom Aerospace, we have increased communications with customers to continually solicit their shop induction forecast and stay ahead of upticks in demand.

“As their stockist, Kellstrom establishes an inventory reserved to support our customers outside of the normally reserved stock as a Just-In-Time (JIT) consignment to support demand. Although the basic concept is not new, the insertion of latest generation technology for forecasting and managing the complexity of constantly changing logistical needs is the element that sets Kellstrom apart,” Adamski claims.

### MITIGATING AOG RISK

Another parts provider with a wealth of experience is AJW Group, which has built its own in-house inventory modelling programme, designed to optimise customers’ stock holding, reports the company’s Head of Solutions, Simon Merriott. “The model mitigates AOG risk by separating critical components,” he says. “The programme can be configured to take into account a multitude of variables including locations, seasons, part criticality, vendor lead-times, and economic order quantities. It then calculates and sets the appropriate stock level while also including an inbuilt safety buffer to offset seasonal demand spikes.

“This tool makes optimum use of predictive algorithms based on a combination of historical and forecast usage, combined with current inventory levels from both our customers and AJW’s ERP (enterprise resource planning) system. It supports the restocking of our customers’ consignment stock, ensuring spares

availability that meets their operational requirements and reduces the risk of overstocking,” Merriott confirms.

Also with its own algorithm-based purchasing system is SkySelect, whose application speeds up the purchasing cycle, notes CEO Erkki Brakmann. “Going from a part request to a purchase order has been speeded up tenfold – literally from days to minutes. This allows airlines to reduce their safety stock levels,” he elaborates.

“SkySelect’s system relies on data and analytics to help buyers make the right purchasing decisions. For example, if a specific part number is widely available, the buyer can decide to buy fewer or, in the case of a component, decide whether it is more cost-efficient to buy or repair a unit.

“The amount of readily available inventory has increased from pre-COVID times. Conversely, the proportion of parts with greater lead times has dropped,” Brakmann states. “This is great news for airlines because now they can stock less and save more.”

New IT developments are regularly introduced to streamline supply chains even further, and the SkySelect CEO is fully in favour. “Buyers are often still stuck with manual, time-consuming processes in a market that is extremely fragmented and changing rapidly,” he says. “Machines don’t replace people, but they can help. For example, as a human buyer, our purchasing process is sequential – we make decisions part by part. Machines can accelerate all

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that and process hundreds or thousands of parts simultaneously thanks to greater computing power.

“Over 90% of parts purchasing decisions are straightforward, allowing buyers to focus on the remaining purchases that require more back and forth internal and external communication and greater sophistication to come to the best decision,” Brakmann comments.

### ADAPTING WITH A NEW PULSE

At Farsound, Kelsey reports that the company invested in Microsoft Dynamic Nav a few years ago, which helped to streamline the business. “We have, like most companies, made changes to tailor to the needs of our business and are now looking

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**Erkki Brakmann, CEO, SkySelect**

to introduce MS GO, which is a CRM (customer relationship management) platform to capture everything within the company,” he remarks.

“Over the years, we have perfected our consignment offering by using carousels, but now we are moving to line-side vending machines or, as we call them, PULSE (Parts Utilisation Logistic Storage Equipment). This allows us to work with our customers, reducing the footprint of parts moving

around the shop and ensuring stock is at the correct levels,” Kelsey adds.

Recent IT innovations within the AJW Group to develop the supply chain are outlined by Sajedah Rustom, Chief Executive Officer of AJW Technique, the group’s MRO facility in Canada. “Over the past 12 months, we heightened the design and development of smart digital solutions for our entire structure – which is designed around supply chain process steps – to meet

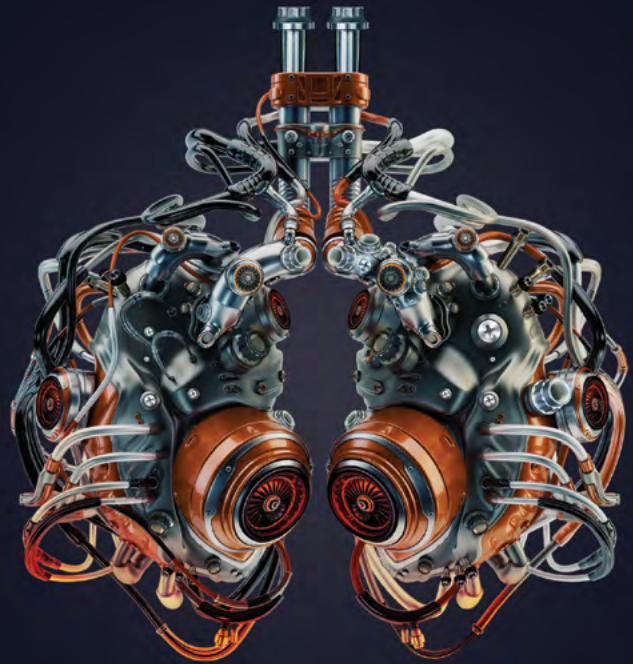


# FARSOUND

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customers' evolving needs," she reports. "We increased investment in customer-facing digitalisation, resulting in real-time monitoring dashboards and tracking tools, thereby making internal productivity fully transparent and, in turn, the customer experience seamlessly efficient from end to end.

"We launched a responsive, interactive, and mobile customer portal, which enables 24-7-365 interaction with support teams, regardless of location, with no transaction delay, full data, and process integration," Rustom continues. "We also released our new e-commerce platform, AJW eventory, for parts trading, where users can browse and purchase from our extensive inventory, including our 'priced to move' Outlet stock. The platform allows easy access to full paperwork trace, chat functionality, and the ability to ship via any chosen method and track the shipment in a few clicks."

Kellstrom's focus, meanwhile, has been on real-time condition monitoring of aircraft engines and systems, according to Adamski. "Such monitoring – looking at sensory inputs like vibration readings or EGT margin degradation – when coupled with effective predictive analytics software, can help operators to plan for future maintenance events with a greater sense of what parts and components may be required," he notes.

"On the supply chain side, latest-generation ERP solutions can include effective forecasting tools as well as introducing automated analysis, ML [machine learning] and AI, all to optimise the timing and mix of inventory to support a very high fill rate of customer demand with the optimal inventory location and logistical planning," Adamski emphasises.

Even with its considerable heritage, AAR is always striving to enhance its supply chain expertise, although Parant admits that for legacy aircraft, the company does rely on experience and years of knowledge that allow the validation of solid models.

"For new aircraft, modern technology will allow us to move closer to a predictive



**Trading places: AJW's eventory e-commerce platform allows customers to browse and purchase from an exclusive list of Airbus and Boeing aircraft rotatable parts.**

maintenance model. We now know in advance when a part will need to be replaced, and this helps to optimise inventory size. As aircraft generate data in increasing amounts, data analytics has to adapt rapidly to handle the volumes and predict maintenance events," Parant says. "But data analytics also has to adapt on the other side of the supply chain – repair management. AAR acquired AIRINMAR nearly a decade ago to become a leader and have a competitive advantage in repair management. AIRINMAR supports over 200,000 repair orders per year."

### **PARTS IS TOO SIMPLE A WORD**

When sourcing parts, providers need to respond to the mix sought by airlines and MRO shops – from new OEM parts to PMA parts and used serviceable material (USM), each of which can be advantageous depending on time and money.

"There are several aspects for consideration here, including fleet mix, diversity of aircraft age, type, stage in the aircraft life, owned or leased aircraft. All these parameters have an impact on strategy," Parant says. "For example, if you lease an aircraft, the lessor will require that the average component age doesn't exceed aircraft age. Lessors include this requirement as some new aircraft have been stripped of new components and had them replaced by old ones. At lease return, or perhaps repossession, it impacts greatly on

the asset's residual value. Lessors are also very reluctant to use PMAs for critical parts.

"When you operate a mature fleet/ aircraft type, USM is often the best strategy as parts age will cope with aircraft age. Repair or replace depends on parts pricing," Parant adds.

Assessing new/PMA/USM options, Farsound's Kersey comments, "When looking at advantages, we can only see the availability of serviceable material over OEM or PMA. There is a shortage of parts within the market, and raw material lead times are being extended, so serviceable parts will become more desirable. With Farsound's planning and market knowledge, we have been able to hold the right stocks, having availability all the time," he stresses.

SkySelect's Brakmann observes that with "the dramatic drop in the number of flights and the economic crunch in the industry, the spare parts industry also saw a drop in the number of transactions. Because of this, the amount of excess inventory (USM) has almost doubled compared to pre-COVID."

He, therefore, believes that airlines can currently make savings in the aftermarket. "With the crisis, however, a lot of people have unfortunately been let go, and if an airline is stuck with a manual, labour-intensive purchasing process, it won't be easy to take advantage of the aftermarket opportunities," he warns.

The view of Kellstrom's Adamski is that right now, most airlines are focused on the lowest possible cost of ownership per flight mile for their aircraft and engines, regardless of whether they're owned or leased. "To solve that equation, airlines are exploring more permutations of support strategies than ever," he asserts, acknowledging the potential to use new OEM, USM or PMA parts ("especially if the PMA is from an OEM providing an alternative OEM solution certified through the FAA/PMA process").

It seems those offering supply chain support are working flat out to ensure the most effective solutions. After all, nobody wants to be known as the weakest link. ■

