In control: WinAir helps operators deal with changing OEM maintenance requirements.

Super Stock Highway

IT and MROs have been working together in a partnership that has allowed both to flourish. With the impact of COVID-19, technology for MRO companies has proven critical to ensuring their survival. Michael Doran investigates how effective this has been.

The world of MRO IT is not standing still, so to keep up, *LARA* has reached out to industry leaders to build a picture of how MRO systems are being designed to be user-friendly, keep operators compliant, facilitate mobility, detect defects, and track parts.

Headquartered in Vevey, Switzerland, Rusada develops software for airworthiness, MRO and flight operations used by more than 100 customers with support from locations in Europe, the USA, the Middle East, Asia, and Australia. Feedback from customer forums asked for a web-based system using mobile devices, which drove the development of the latest version of its ENVISION package.

"The three things that stand out are the web solution, the user-friendly configuration and how easy it is to implement," says Rusada's Saidhar Pathigari, Sales Director for the Middle East and APAC. "Small

Innovative Ultramain

By John Stone, Vice-President, Product Management, Ultramain

Some of the latest IT innovations supporting the MRO sector are from Ultramain, whose software addresses a broad spectrum of aviation maintenance needs. It fully integrates maintenance (line, base, engine, shop) with materials, labour, documentation, ELB and procurement. It provides the right parts to the right spot at the right time to support maintenance. Ultramain is a suite of applications that can be licensed and implemented individually as needed, allowing small operators to start small then add modules later as desired.

Innovations are continually flowing into Ultramain. One recent innovation involves optimisation for labour scheduling, hangar planning, maintenance scheduling, check execution, and materials stocking and ordering. In each of these processes, Ultramain algorithms optimise the outcome based on your inputs. 'What-if' modelling is used to allow outcome comparisons to help you select the optimised outcome you desire. Optimisation enables you to know in advance what you should be doing and how to achieve it.

Ultramain informs you in real time on what you are doing. This is a result of being a fully paperless system where operators receive Ops Approvals from aviation regulatory authorities allowing Ultramain to be their paperless system of record. Mobile devices and or kiosks replace paper task cards, allowing supervisors and planners to know what's actually taking place as work is

underway. After-the-fact data entry and related costs, delays, and additional staff are things of the past. Knowing where you are, what's done and what's not in real time is extremely valuable information.

It informs you of how you are doing in real time by showing you work accomplishment compared to your original (or revised) work plans. You will know if the planned work will be completed on time or not, and if not, why not and when it will be done. The same is true for billing. Are you on target, above or below, and why?

Another innovation is Ultramain ELB, a mature and proven ELB, approved and used at many airlines around the world. It is integration compliant to SPEC2000 Chapter 17 v4, which is the two-way integration specification and has been integrated with many M&E systems in addition to Ultramain M&E. It operates on iOS and Windows Mobile devices connected or offline to the ELB Ground System. To date, millions of flight sectors have been flown using Ultramain ELB.

Industry feedback is excellent. Possibly you have seen some of our recent ads

featuring our paperless customers. These cannot be placed without customer satisfaction and cooperation.

Ultramain is a paperless system, therefore, end-user transactions are accomplished using mobile devices. Using our software on mobile devices is so easy that we typically see prospective customers taking the devices from us in demos and doing transactions themselves. They can do it on the spot because it's that easy to do.

Unlike other offerings, the system is not rigid, inflexible software that requires users to conform to it. It is also not software requiring a build-out project to get it to work the way an operator wants, one that's always expensive and time-consuming. Instead, it is a highly flexible and configurable framework-based network that is data and metadata-driven. Ultramain is tailored to customer preferences. From Initialisation meetings, we set up and configure Ultramain to operate how the operator desires. Setup is quick and easy because we do it. ■

Ultramain Mobile Mechanic allows mechanics to easily access task cards and work instructions from mobile devices. Mobile Mechanic also supports electronic sign-off.

airlines and start-ups don't have big IT teams, so we manage everything on the cloud."

ENVISION has 10 modules, and operators can select just the ones they need and then add others as their needs change, making it an attractive system for LCCs and regional operators. "From the start, we work with our customer to understand the businesses to define the solution, and we do not ask them to use the system as is," Pathigari tells *LARA*. "We modify or configure the system as per their need, and that's how it always works."

The Rusada implementation team are purposely from airline and MRO backgrounds, so they understand the operation and how things look from the customers' side, which Pathigari believes is

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>
> **Saidhar Pathigari, Sales Director for the Middle East and APAC, Rusada**

a great advantage when systems are being implemented. "They know the challenges the customers face daily, all the jargon, and this is a big strength for Rusada."

Designing a solution and implementing it in COVID times is particularly challenging, but Rusada has carried on regardless, using video meetings and project management software. In one case, it sold, signed, and implemented a solution without any face-to-face interactions. Pathigari says it's this willingness to find a way that helps Rusada stand out.

MANAGING COMPLIANCE
MRO software is mainly focused on efficiency, and while WinAir's systems do lift efficiency, their main aim is to help　　**»»**

AMOSmobile_STORES: App built using Google Flutter.

By Chris Clements, Sales Representative, Swiss Aviation Software

Super-tech Swiss

Swiss-AS has been listening carefully to the AMOS community as well as evaluating the industry trends and requirements. Whilst COVID-19 has had an undeniable impact on aviation and supporting industries, we found ourselves in the enviable position of having the functionality in AMOS to allow our customers to manage their business without adjusting our development roadmap. We have been able to keep our focus on developments such as AMOSmobile/STORES. Whilst a mobile stores device may not be the most significant change that our customers can reap the benefits from, the tech platform that it sits on is perhaps the more exciting evolution here.

We already had a flexible mobile solution in AMOSmobile/EXEC that can be deployed on any hardware and OS, which had been well received. Feedback from the customer base indicated that whilst maintenance needs to be as live as possible regarding access to and writing data, offline capability would be a big advantage in isolated instances. We listened to the AMOS community, and AMOSmobile/STORES has been built on a new tech platform, Google Flutter. This has enabled us to produce native apps to function both on and offline in a hybrid manner. Having adopted this for AMOSmobile/STORES, AMOSmobile/EXEC2.0

will follow soon as well as additional targeted future AMOSmobile applications.

We send out a customer satisfaction survey to the community each year to ensure that our customers have the means to tell us where we are doing well and where they expect improvements. Unfortunately, due to COVID-19, we were unable to perform this reliably in 2020, and so we look forward to the results of 2021. Perhaps one of the boldest statements is that AMOS has not been replaced by any of our customers to date. The AMOS community remains strong, healthy and continues to grow. This trust that has been put in AMOS and Swiss-AS is a responsibility that all at Swiss-AS proudly bear. We also continue to have a constant stream of pre-sales requests coming into the Marketing Department driven primarily by AMOS and Swiss-AS's reputation as a market-leading product and company. During these pre-sales discussions, we often hear that employees of various positions and responsibilities have used AMOS previously and heavily promoted it internally. We have secured several new customers in the last few months that have staff familiar with AMOS. This is by no means the only path that leads airlines and MROs to our door, however. AMOS and Swiss-AS's reputation within the industry for providing a mature product with technology that

supports the latest generation of aircraft and older fleets and is fully scalable for any customer's needs remains as strong as ever. Keywords that we often hear are mature, user-friendly, extensive functionality, integrated, and innovative.

As with any system, it is the training for the end-user that's critical to a smooth transition, and Swiss-AS has vast experience in implementing AMOS. We have constantly evaluated the best way to support our customers in introducing AMOS to the business and ensuring the end-users can exploit all the advantages of advanced M&E software such as AMOS. Swiss-AS has developed a suite of e-Learning modules that allow the customer to ensure that all potential users can receive at the very least the basics of AMOS. When it comes to more in-depth training, our Training Department has a team of trainers with industry and AMOS experience that allows them to explain in detail what AMOS enables the user to accomplish and train this using real-world examples and solutions responding to each participant as required. This is something that e-Learning alone cannot achieve. While AMOS is an intuitive and logical software to be used by experienced aviation professionals, the complexity that the aviation industry demands (whether this be configuration control with multiple levels of effectivity or automation to support the user's decision process) cannot simply be learnt by doing. Swiss-AS has developed many different solutions to offer the most cost-effective method of deploying training without sacrificing the quality of knowledge transfer. We work with our customers to identify which training courses are required and how they should be delivered. ∎

operators remain compliant and follow the correct practices. Managing Director Kyle Vergeer tells *LARA* the full gamut of maintenance activities are going to be scrutinised to meet regulations, and WinAir gives customers the tools to help them manage that.

"Our core goal is to help people ensure compliance relative to their maintenance activities, whether it's making sure parts are from approved vendors, mechanics are licensed and up-to-date, or the tools they use are calibrated," he says.

Part of WinAir's solution is to combine all the various publications, directives and manuals into the maintenance programme, with a revision management tool built into

> "When you do need to operate in those conditions, you have to have some robust tools that can do the maths for you and keep you flying."
>
> **Kyle Vergeer, Managing Director, WinAir**

the system. Vergeer believes WinAir excels when dealing with more complex aircraft where the maintenance needs change depending on how and where the aircraft is being operated.

"A lot of manufacturers seem to increasingly complicate their maintenance programme so that if you are not always flying in environments that are corrosive or high winds or things like that, you can have a lesser penalty on your maintenance," he explains. "But when you do need to operate in those conditions, you have to have some robust tools that can do the maths for you and keep you flying."

Managing components can also be challenging because they live a separate life to the airframe and are often swapped, 》》》

particularly in larger fleets. WinAir has a robust way of tracking components from the cradle to the grave that, Vergeer says, "shows people the whole life of that component".

WinAir has been extraordinarily successful in the regional sector, with users including Air Inuit, Trans Maldivian, Air Niugini, Windward Islands Airways, Alliance Airlines and Zimex Aviation in Switzerland.

POWER AT YOUR FINGERTIPS
When asked what sets Ultramain MRO software apart, John Stone, Vice-President of Product Management, tells *LARA* it's the system's flexibility that allows users to configure it around their way of operating, rather than changing their business to suit a rigidly defined package.

Ultramain offers a full suite of MRO programs, and two modules that stand out are the Electronic Logbook (ELB) and Mobile Mechanic (MM). From cockpit or cabin, any maintenance issues can be recorded into the ELB and pushed straight into the MRO system, lifting efficiencies and reducing aircraft turn times.

> "From a cost perspective, you're significantly reducing the number of parts that you are going through and the labour cost from fixing recurring defects."
>
> **Greg Heine, Chief Strategy and Marketing Officer, ATP**

"If you know the details of what's coming to the gate before the aircraft gets there, then you're able to respond much faster and make your plan for resolving the issues before the aircraft is unloaded," explains Stone. "The eCabin function allows cabin crew to input defects which are particularly useful when issues arise with seat defects or unserviceable galley equipment."

With the defects recorded in the ELB, Mobile Mechanic allows the technical personnel to receive their job assignments, access electronic task cards, create non-routine cards, order parts, and sign-off the work electronically on their mobile devices.

"All of your ground and maintenance organisation have visibility of the maintenance status, and when completed, everything works backwards to clear all the tasks and send that information to the ELB and gain the certificate of release.

"Paperless is a result, not the mission, and you want the mechanics on-wing being productive with mobile devices using simple software," Stone concludes. "The only way you can do that is if you go paperless.

Intelligent hands-free IT

By Adam Frost, Product Manager OASES, Commsoft

COVID-19 has presented some enormous challenges for the industry in all aspects of a typical working day. As Adam Frost, Project Manager for Commsoft, explains: "We have a 'work from where you're most productive' policy, so we were well-positioned for working from home during the lockdowns. However, we find development teams are most creative when they're co-located, so it has been frustrating that we haven't been able to do that during most of the past year. The national furlough schemes have meant that users have had reduced availability to

collaborate, and face-to-face meetings have been, for the most part, impossible to prevent spreading the virus.

"We have moved our systems to the cloud, which is easier to access outside the office and removes the need to maintain our infrastructure physically."

But the new way of working has not meant that technology development is at a standstill: "This year, we have restructured our development teams to focus on the continuous deployment of OASES Mobile and our new OASES Cloud product. OASES Cloud will sit alongside the existing Desktop and Mobile products and exploit

"Our smallest operator is Virgin Galactic going all the way up up to Emirates and Cathay Pacific, and the ideal operators are those who understand going paperless and mobile drives efficiencies."

ATP'S POWER OF THREE

ATP, a leading provider of aviation software solutions and information services, has three software solutions, Flightdocs, ChronicX and SpotLight. These are supplemented with the ATP Aviation Hub, a cloud-based library of more than 1,700 technical and regulatory publications.

Flightdocs is a maintenance and inventory management solution that covers the whole process from recording and reporting the defect through to execution and sign-off, says Greg Heine, Chief Strategy and Marketing Officer. "A lot of products tend to be record-keeping systems but with Flightdocs, it's all done within the system."
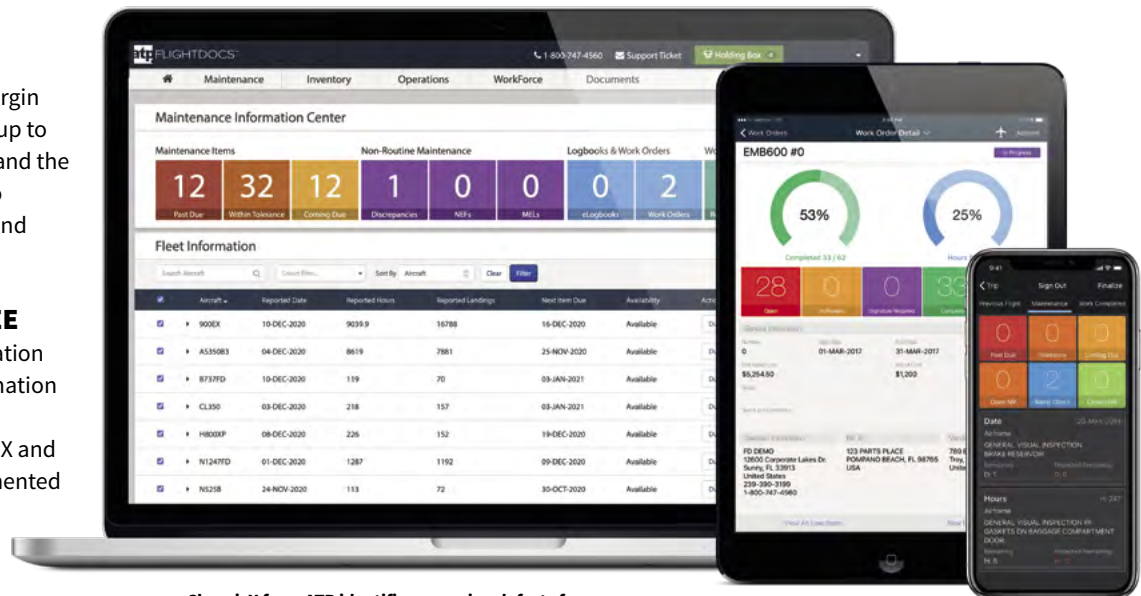
ChronicX from ATP identifies recurring defects from multiple aircraft in the fleet. Photo: ATP

ChronicX highlights recurring or chronic defects using algorithms to identify when the same issue is affecting multiple aircraft across a fleet, irrespective of how those defects are being coded in the system. Heine estimates the ChronicX platform is used on around 6,500 aircraft.

"It helps airlines detect recurring defects much faster, and so we've been able to significantly decrease downtime, cancellations and delays for airlines with this product," he says. "From a cost perspective, you're significantly reducing the number of parts that you are going »»

its inherent mobility and superior user experience.

"Our ethos has always been to work in partnership with our customers, to support their business needs and to facilitate their success. As the next step in our relationship, we launched our Ideas Portal, which has revolutionised how we elicit feedback from our users. Any user can post their idea for an improvement and view other users' ideas. They can discuss their own pain points in the comments and vote on ideas that would benefit them. For us, the benefits are that we can understand what is widely in demand, and we get a well-rounded description of the requirement from various perspectives. This enables us to deliver features that are widely applicable and appreciated.

"We are committed to the Agile development methodology where the key to success is collaboration with users throughout the development lifecycle. This allows us to deliver value to users quickly and to build on that value incrementally under their guidance.

"Our new cloud platform, on-trend for many good reasons, will allow our customers to benefit from incremental updates as soon as they are available and remove risk associated with deploying complex updates and the concomitant disruption across their processes."

Like many within the IT sector, Commsoft has adapted its outlook for 2021, with a shift in priorities, to a more physical 'hands-off' approach: "On our roadmap for later in 2021,

we'll be turning our attention to digital hangar maintenance. I think standards for data transfer will be hugely beneficial for airlines and lessors who have seen a great deal of aircraft changes in their fleets recently, and this can be expected to continue as demand for travel picks up after the COVID-19 pandemic and new opportunities present themselves.

"The work being done in the industry using blockchain for digital certificates also has great potential to reduce our reliance on paper along with the inherent time lag it causes. There would be no need to handle, scan, nor store these certificates. Links to the certificates could be included in the data transfer from the supplier, available immediately and across the organisation." ∎

through and the labour cost from fixing recurring defects."

SpotLight is a troubleshooting and diagnostic platform, which Heine says "delivers the expertise of an experienced technician into the hands of a novice technician and allows them to get to that first-time fix quicker, cutting the time it takes to get to a resolution".

"What's unique about this is we can capture feedback as the technician is working through the fix and what the solution for the issue actually was," he explains. "Then we're taking that information and feeding it back into the system so that we can better guide them in future troubleshooting, so there's machine learning happening as well."

ENTRACK LENDS SUPPORT

A critical and complex part of MRO is keeping track of where all the parts are, what stage they are in, and when will they

> "It records which parts are there, what work order they belong to, where they are going, and so it's a part level as well as an activity level tracking that we do."
>
> **Hem Pandey, Business Head of Digital MRO, TrackIT Solutions**

be ready for reassembly, but a new solution from digital transformation specialists TrackIT Solutions is changing all that.

In essence, EnTrack MRO uses RFID tags to automatically track, in real time, each part through the repair process, both internally and at external vendors, to bring total visibility to the status of the overall repair being performed.

TrackIT's Business Head of Digital MRO, Hem Pandey, explains that EnTrack MRO is not an engineering and maintenance solution but works in conjunction with those systems to enhance informed decision making.

Using engines as an example, Pandey tells *LARA* that when an engine is disassembled, all the component parts are RFID tagged and each time they move from one station to another, they pass through an electronic gate that records, among other things, when the part is moved, what was done and how long it spent in that process.

"There could be 200 different parts in a cart, and when they move to the next station, the gate reads all the tags in a few seconds, so you don't need to scan each part separately," he says. "It records which parts are there, what work order they belong to, where they are going, and so it's a part level as well as an activity level tracking that we do."

TrackIT also has EnTrackSET, which uses RFID tagging for the daily inspections of onboard safety equipment. "In an A320, we track around 300 pieces of safety equipment using handheld readers, and by doing that, we have reduced what was a 40-minute task down to around two and a half minutes," Pandey adds. ∎
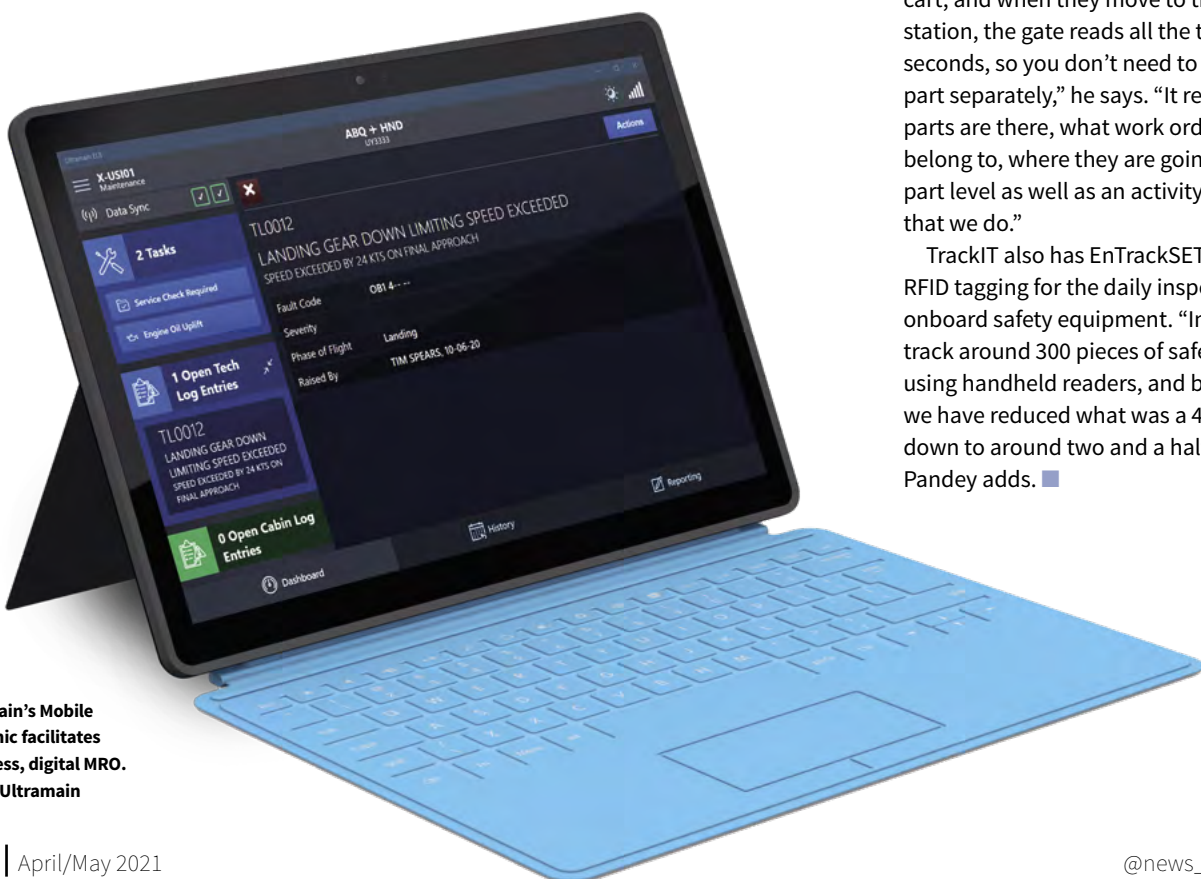
Ultramain's Mobile Mechanic facilitates paperless, digital MRO. Photo: Ultramain