



INFORMATION TECHNOLOGY

Maintenance in the palm of your hand

Comprehensive IT platforms for maintenance planning are becoming increasingly popular among airlines as they look to streamline MRO processes and reduce costs. *Hannah Davies* explores what's on offer while discussing the challenges and advances in the IT MRO business.

Timing is everything in aviation; each day airlines commit to transporting millions of passengers to hundreds of destinations, on time. And in order to deliver such a service, an airline has to implement the tightest of procedures across its whole business, from having cabin crew on standby to ensuring that a part can be easily located if an aircraft is grounded. By adopting an advanced IT MRO solution airlines can manage and improve their maintenance processes in real-time, consequently reducing lead times and costs.

Imagine having an all-encompassing system in place that caters to your business's individual needs while providing a clear overview of operations. This is exactly what the innovative IT solutions offered by the likes of Commsoft, Ramco and Rusada promise.

While these systems most certainly help airlines to log and streamline key operational data, they have also been developed to give customers choice and flexibility. Through multiple comprehensive modules, users are able to integrate the platforms into their existing set-ups and legacy systems to automatically generate content, including reports and graphs that play a huge role in planning future maintenance processes more cost-effectively.

Planning, predicting and evaluating

For example, UK-based Commsoft's Open Aviation Strategic Engineering System (OASES) features a 'Planning Module' that can predict when maintenance tasks, modifications and defect limitations are due, giving customers the

chance to plan maintenance to coincide with other, already planned checks. The module can also automatically generate work package documentation and material pre-loads, which can be stored on the system and used to forecast future maintenance events.

Ramco, based in the south Indian city of Chennai, is another company that offers the market an IT system for maintenance planning and has 17,000 end users globally, according to Ranganathan Jagannathan, head of Global Aviation Solutions. Through its solution, the company allows customers — including Emirates, Malaysia Airlines and Republic Airways — to manage diverse areas such as engineering, planning, maintenance operations, materials, third-party MRO, tech records, reliability and financials. It also features reporting capabilities, email alerts and workflows.

The solution meets time-sensitive demands of customers with its 'In-Memory Planning and Optimisation Algorithm', which allows it to consider all the necessary criteria, evaluate all possible outcomes and speedily deliver the "most optimal capacity, manpower and equipment utilisation options for managing swift turn-arounds", explains Jagannathan.

Likewise, Commssoft — through its OASES system — aims to reduce turn around times (TATs) for customers during maintenance events. And with over 90 operators using the system worldwide in 43 countries, this eight-module solution is clearly doing well.

According to Nick Godwin, MD at the company, its success is thanks to OASES's functionality covering key areas of aviation maintenance, including technical records, planning, airworthiness, engineering, purchasing and inventory, commercial and quotes management, shop floor production, configuration control, warranty management, line and base maintenance.

While Rusada, which is head-quartered in Switzerland, offers the market a comprehensive MRO solution called 'Envision'. This platform features seven innovative modules that target everything from fleet management and maintenance planning to flight operations and quality assurance. With Envision, customers are able to plan work and see the impact of the planned work, also benefiting from a graphical representation that can display both confirmed and planned maintenance visits, allowing businesses to plan checks accordingly.

Maintenance visit management also includes status monitoring and the ability to import work either from a maintenance forecast or

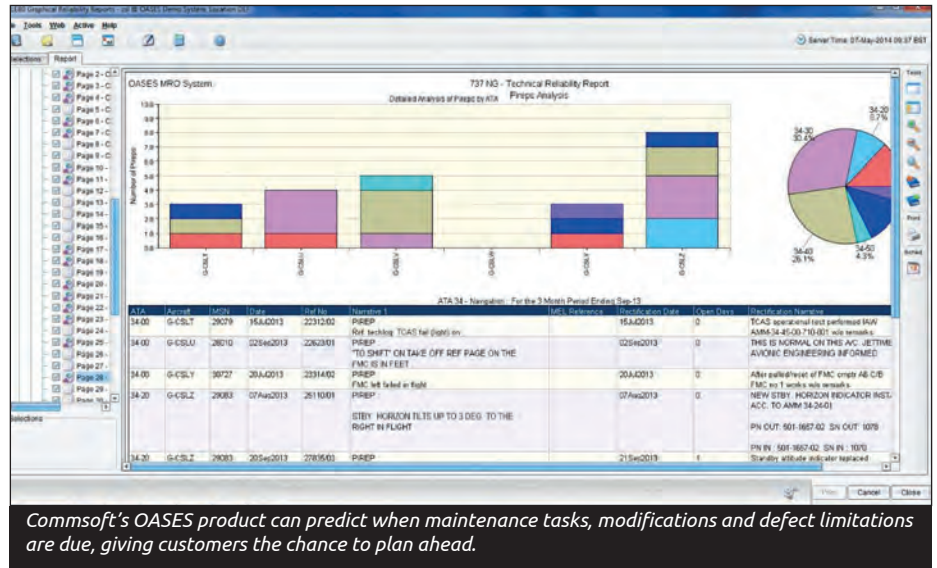
"From offering easy centralised access to providing an integrated view of the whole maintenance operation, next-gen maintenance planning solutions offer the ability to predict constraints and visualise bottlenecks, using 'What if' scenarios and thus reduce costs."

Ranganathan Jagannathan, Ramco's head of Global Aviation Solutions

on an *ad hoc* basis, according to Rusada. The company counts operators and MRO providers among its customers and with close to 30 years' of experience in developing and implementing MRO IT solutions, it's no stranger to meeting the growing needs of customers.

Forecasting maintenance

Forecasting and planning ahead for future maintenance events has become a key priority for airlines. Adopting lean maintenance is also becoming more common, as airlines and MRO shops



Commssoft's OASES product can predict when maintenance tasks, modifications and defect limitations are due, giving customers the chance to plan ahead.

work tirelessly to avoid the huge costs associated with the failure of large parts, such as an engine.

Trying to predict when a part might fail or be due for servicing is quickly becoming best practice, as it allows an airline to carry out any unplanned repair work within scheduled maintenance time. In order to be proactive and predict system failures, real-time data and diagnostic tools are crucial. Next-generation aircraft feature thousands of sensors that can report on the health of certain parts, delivering messages to the ground to help MROs prepare for repairs. This has proven to be an invaluable tool.

It's also important for airlines to have access to tools that can carry out in-depth forecasting with regards to what costs an airline can expect to incur in specific scenarios. Rusada's Envision

downtime and increase revenue hours. "In order to achieve this, it becomes imperative for our customers to have an idea of the maintenance due list (short- and long-term), material forecast and budget forecast," explains Croarkin. Adding that: "By planning well in advance for maintenance events, customers are able to reduce the time spent in getting the spares, tools, facilities and resources required."

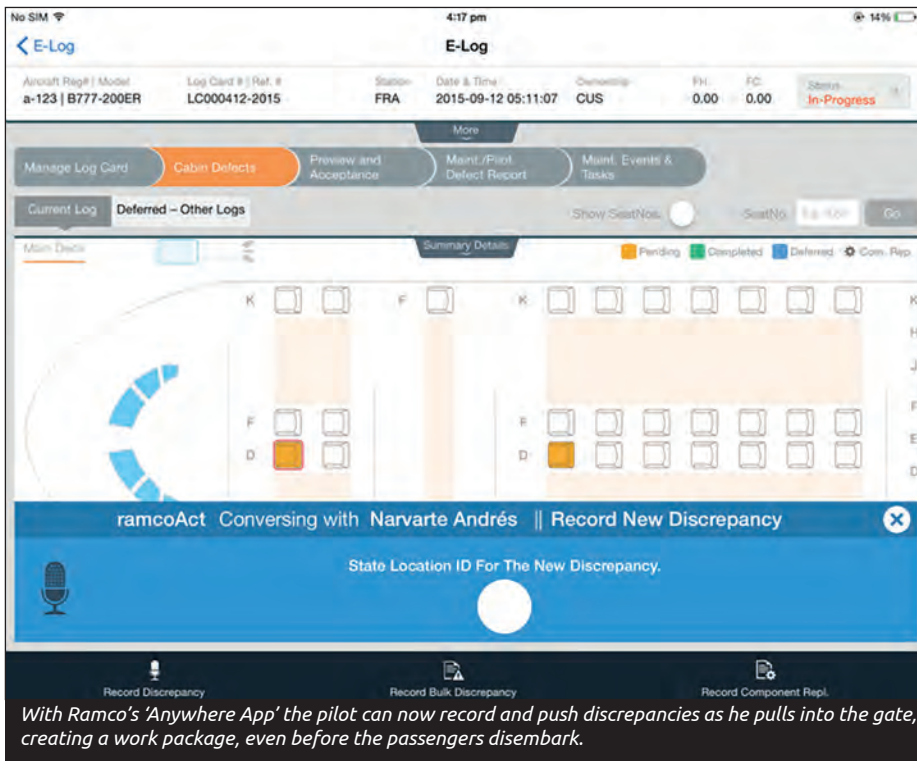
Ramco's Jagannathan agrees that there is an increasing focus on cost reduction and streamlining of operations, in addition to safety and meeting regulatory mandates. As part of Ramco's overall solution, it has developed a process — fittingly labelled a "What If" scenario — to give customers the ability to analyse the impact of constraints by performing possible maintenance situations.

"From offering easy centralised access to providing an integrated view of the whole maintenance operation, next-gen maintenance planning solutions offer the ability to predict constraints and visualise bottlenecks, using 'What if' scenarios and thus reduce costs," explains Jagannathan. "Other significant benefits from implementing such IT systems include increased revenues through better fleet utilisation, reduction in TATs, savings in warranty costs, inventory optimisation, better maintenance planning and increased yield."

Return on investment

When, according to Godwin, an IT investment must give a minimum of 300 per cent return on investment (ROI) to customers to be effective at generating real value, there's a real pressure for IT solutions providers to meet (and exceed) customer demands, in order to win and retain business.

Of course, having access to powerful reporting tools and reliable real-time data is hugely



With Ramco's 'Anywhere App' the pilot can now record and push discrepancies as he pulls into the gate, creating a work package, even before the passengers disembark.

important to airlines, but IT companies are still having to show that their alternative option is a necessary investment no matter how tight the budget.

This is why Commssoft prides itself on delivering “comprehensive but flexible functionality for an affordable price” with OASES. And through this flexibility customers can benefit from “faster, more accurate” information that is more efficiently generated, to give maximum value returns, according to Godwin.

Additionally, the improvement in the speed of communication and processing has allowed new MRO IT systems to offer “enhanced reporting and two-three click access to a greater variety of stakeholders, including owners, lessors, regulatory bodies and senior management within organisations,” explains Godwin.

Commssoft’s standard software rental model also makes it easy for customers to start using OASES without large up-front investment and offers free of charge updates, to further maximise value. Customers can also take advantage of the private Cloud option meaning access can be obtained from anywhere in the world via an internet connection.

Rusada notes it is a challenge to educate companies about investing in IT platforms for maintenance planning, especially when a “significant number” of companies still opt for simple spreadsheets to manage information, and seem happy to do so. However, “increased governance over regulatory reporting is compelling companies to invest in IT systems, to

increase productivity and for the ease of generating reports, tracking compliance and auditing” says Croarkin.

Understanding that any investment is a big step for an airline, the solutions provider also offers a consultancy service to help carriers understand how IT for maintenance planning is an effective and money-saving option.

Changing ways

The MRO business has changed in many ways over the years, especially as more next-generation airframes and products enter the market.

For example, airlines are downsizing their inventories; there are longer gaps between scheduled maintenance checks; onboard sensors help with predictive and preventative maintenance; and integrated IT systems for maintenance planning are being adopted to help streamline operations.

And while technology such as advanced sensors plays a significant role in improving an airline’s maintenance process, IT solutions are also making their mark by providing customers with forecasting tools that firmly place power into the hands of airlines. After all, having a platform that is easily accessible at the touch of a button and able to monitor, analyse and store data, carry out scenarios and forecast maintenance events can only be beneficial.

Commssoft’s Godwin explains that “maintenance planning has seen a growth in functional power and flexibility of deployment, with agile, best of breed IT systems such as OASES now

being able to offer better focused engineering, maintenance and business information for a fraction of the cost of unwieldy enterprise resource planning systems.”

In addition to offering airlines a comprehensive platform to store business data, MRO IT systems can also be integrated into existing interfaces with ease (although initial implementation can take up to 12 months).

Rusada’s Croarkin says: “Operators are looking [for] tools that will help them manage the critical path of the check as an integral part of the maintenance planning,” adding that “companies now want to look at the entire end-to-end cycle of how to manage the execution of the check within the planning phase.”

Jagannathan also explains that: “aviation companies nowadays don’t expect just an upgrade from paper-based operations or an integrated system, [but instead] demand value propositions in the form of solution accelerators, such as real-time disruption handling, integrating maintenance planning with financials, or access to tech innovations, including advanced simulation and algorithmic functionality, along with enhanced visualisation and ease of use.”

Indeed, the need for foreseeing the future and planning accordingly has always been there, explains Jagannathan, and the increasing level of global passenger traffic — a massive 3.5 billion passengers were recorded in 2015 — has turned this need into a demand.

Ramco maintains that the trend of companies opening up additional lines of business has made way for an increasing need for integrated solutions that essentially talk to suppliers/vendors. “Subsequently, came the need for access to the IT solutions at any point of time, keeping in line with 24/7 business operations, fuelling the need for mobility solutions,” says Jagannathan.

In the last three years, the company has noticed a “significant surge in IT budgets” and has consequently welcomed over 30 new customers to its network within the last 36 months, while business in Africa is also “picking up”. Commssoft has also benefited from the “growing demand for ever diverse, MRO IT solutions” and according to Godwin, sees more than seven new customers sign up to its services each year.

While 2015 saw Rusada gain a “significant” number of new customers and build up a track record of implementing its Envision business system “on time and within budget”, explains Croarkin. “We see this trend continuing in 2016, as numerous airlines and MRO providers have either manual systems or systems that were developed over 10 years and are now looking at innovative tools that will support them over the next 10 years”.

He concludes that going forward: “Older generation solutions will be replaced with modern web-based innovative solutions that will give true business advantage but which can be implemented within months and not years.”

Getting investment

The IT MRO business has its challenges, from proving its will provide ROI, to being at the forefront of customers’ minds when they have simple but apparently effective processes already in place to manage maintenance information.

According to Ramco, getting the investment from airlines is the biggest challenge, due to investment priorities. Jagannathan explains that: “With a growing demand for better services, safety conditions and newer aircraft, aviation companies face an increasing need to reduce costs and thus increase revenue. Naturally, investments in IT solutions are not necessarily a priority when it comes to budget allocations”.

And just like Commssoft, Ramco also offers airlines an alternative, cheaper option with its Cloud model, which takes away the costs associated with investing in hardware.

The fast-paced growth and constant innovation is also a challenge, explains Croarkin, as IT MRO solutions providers have to anticipate demand in order to develop new functions and have them ready within aggressive timelines.

So what will companies such as Commssoft, Rusada and Ramco do to tackle these industry challenges head on, to help make their products become must-have investments?

The anywhere app

According to Jagannathan, Ramco gives itself a competitive edge through a “consistent focus on R&D to leverage and accelerate the growth of emerging technologies and solutions across the aviation, maintenance and engineering domain”.

“Every third person in the world owns a smartphone”, states Jagannathan and he unsurprisingly reports app development as an important area, while highlighting the ‘Anywhere’ app, which removes critical roles from clunky workstations and keyboards. Focused on improving user experience and intuitiveness and “unplugging” key roles, including pilots, mechanics, supervisors and customers, the dedicated apps from Ramco place an entire job scope in the employee’s palm.

“A pilot can now record and push discrepancies as he pulls into the gate, to create a work package, even before the passengers get off the plane. The mechanic gets to download his job card for the day, as he walks to work. He can even check for parts availability from his app and if needed, raise a part request, while he’s next to the aircraft. A store keeper gets notified



Providers of IT solutions for maintenance planning seem to have a prosperous future ahead of them as the increasing use of mobile technology in the industry, such as techlogs, electronic flight bags and smartphones, help to make their vision a reality.

of the part request, while on coffee break and as he walks back to the hangar, the app will pinpoint which warehouse zone the part is located at,” explains Jagannathan.

And now that handheld devices have penetrated the industry, from cockpit to workshop floor, maintenance systems that were previously characterised by data intensive screens have been replaced by innovative interfaces, with far less navigation and tabs, according to Jagannathan. “Data entry intensive screens have been replaced by auto-fill forms; repetitive processes and non-critical decision making are being replaced by straight through processing, which manages 80 per cent of non-critical work, allowing the end user to concentrate on the critical 20 per cent alone”, he explains.

Rusada has also been busy developing its solutions and by offering a workflow-based system design, its customers are able to learn the system a lot faster, processing work with a greater degree of efficiency.

“In addition, by providing the solution on mobile devices whilst seamlessly interfacing with original equipment manufacturers (OEM) repositories, vendor systems are helping customers reduce their lead time on procurement and OEM data access,” says Croarkin. The company also notes barcoding and radio-frequency identification as tools that will help minimise the need for manual data entry in a number of supply chain transactions, while increasing the accuracy of information.

What the future holds

Providers of IT solutions for maintenance planning most certainly have a prosperous future ahead of them as the increasing use of mobile technology in the industry, such as techlogs, electronic flight bags and smartphones, help to make their vision a reality. Unsurprisingly, Commssoft’s Godwin says the company is “very confident for the future”.

Ramco seems to be equally as confident in its future and just last November (2015) set up a co-innovation centre with Air France Industries KLM Engineering & Maintenance in Singapore. In this new MRO lab the two companies will develop next-generation maintenance technology.

Jagannathan also says that Ramco is creating eco systems for parts pooling, as well as working hard to support paperless operations, predictive analytics and implementation of FAA next-generation initiatives. While Rusada believes that it’s Envision system will be “one of the major systems of choice for airlines and MRO providers” over the next couple of years.

Thus it’s clear that the common goal to innovate and deliver standout products is certainly at play within the IT MRO business. And as the whole industry moves towards paperless operations, adopting such solutions for maintenance planning seems an obvious choice for airlines and MRO providers.