There is greater motivation to transition to paperless and digital processes.
Photo: WinAir

Software technologies target efficiencies in maintenance processes

E-enabled platforms are playing an increasingly key role in integrating MRO and airline processes and even more critically, when compensating for labour shortages.

By Keith Mwanalushi

There is plenty of evidence showing that MRO organisations are now more willing than ever to transition to paperless and digital processes to optimise their operations. Traditionally, MROs have been amongst the slowest to digitise in aviation.

Arturo Melendez, TRAX Software Development Manager believes the intent has been there for quite a long time now, but the motivation to implement these changes represents a marked departure for many companies. "Funding that had previously been skewed toward IFE, operations, and customer-facing software projects, is increasingly being dedicated for maintenance operations," he says.

Melendez reckons this seems to be driven by the severe labour shortages experienced since the pandemic and the consequent need for efficient operations, as well as by the apparent

Arturo Melendez, TRAX Software Development Manager

return on investment (ROI) derived from technologically advanced MRO software solutions.

During a recent TRAX user conference case study presentations by users revealed the results of their implementation of the eMobility suite of apps, followed by heavy attendance at the '*Transitioning to TRAX eMRO*' breakout session on moving from the desktop to the device-agnostic web-based software version – "The ROI testimonies often focused on the benefits derived from a mobile, paperless, and

> " **Operators need the flexibility to rapidly ramp up or down their fleet size since the post-pandemic market is still vulnerable to ups and downs in utilisation and demand.** "
>
> *Arturo Melendez, TRAX*

Creating dashbords could easily highlight any bottlenecks in the process flows.

Photo: TRAX

technologically advanced MRO software solution," Melendez reports.

At Rusada Aviation Software they are not particularly seeing a role change due to manpower shortages but rather manpower shortages are highlighting areas of inefficiency that have always been present in MRO operations and have been exacerbated now resources are tight. "This is prompting people to act, when previously these issues were ignored," says David Purfurst, Global Pre-Sales Director at Rusada.

Purfurst believes the best way to combat the current supply chain issues is with more informed decisions. He says organisations need better insight into potential shortages so that they can plan accordingly to avoid disruptions. "The more data they have at their disposal the easier this becomes. This is yet another reason people are moving towards more modern MRO software solutions, which keep a record of all inventory transactions and utilisation, rather than legacy systems or spreadsheets that do not correctly capture this vital information."

Given the current market environment, organisational and cost efficiency are major objectives among airlines, MROs, OEMs and distributors. Nauman Saeed, Chief Operator Office at SkySelect advises the best way to achieve both objectives is by automating recurring tasks such that operations can effectively scale with

David Purfurst – Global Pre-Sales Director at Rusada

business and market requirements. "This is especially true as the market ramps up globally post-pandemic to 2019 demand. Cash constraints, supply chain volatility and human capital shortages compound the need for operational efficiency."

Saeed observes that digitisation, which is a recurring theme among organisations and machine learning are poised to help aviation stakeholders speed up repetitive and intensive tasks. "Today, more so than ever before, technology is getting more affordable and easier to scale, while enabling current human capital to focus on strategic tasks of the organisation."

For example, Saeed indicates that with SkySelect, airlines and MROs can automate up to 90% of material purchasing, especially consumable and expendables - and effectively shift focus of procurement agents from tactical to strategic buying.

With the shortage of technical skills in the aviation workforce and specifically in the procurement arena, organisations are seeking ways to address requirements and meet their respective shareholder return. "Specifically, when reviewing MRO

Nauman Saeed, COO at SkySelect

software solutions, one area to consider is the implementation timeline and the resource requirement to complete such tasks," Saeed continues.

There are legacy solutions in the parts procurement area that are highly complex and time-consuming, taking six to 12 months of implementation and resource bandwidth, hence diminishing the customer value proposition. However, Saeed cites new disruptive technologies that are available "on-demand," meaning the setup is easy without significant implementation expenses and only takes a few hours to see the cost and process efficiency gains.

"This is achieved through AI-based technology, and a backend service infrastructure providing sourcing, procurement and order management on-demand," Saeed explains.

At specialist aviation software consulting firm, CordobaQ, their MRO clients are looking for support in three main areas. Firstly, the automation of different parts of the business to streamline processes and improve efficiency. Jason Cordoba, CEO at CordobaQ Consulting says this is key as a considerable amount of time is saved through automation of labour-intensive

tasks, freeing up personnel to focus on other, more value-added tasks.
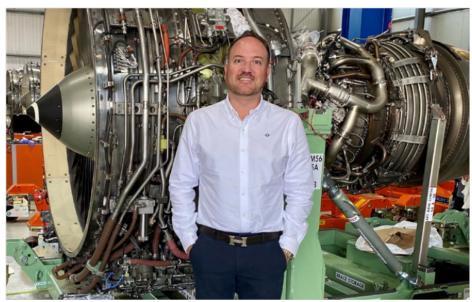
"Secondly, it's important to review all manual process flows to ensure that current staff are fully trained and have not created time consuming workarounds due to lack of knowledge. The third key area is the use of data to analyse business performance. The creation of dashboards that track TAT performance, for example, can easily highlight any bottlenecks in the process flow and identify if there are too many team members working in one area of the business, versus a shortage of staff in another," Cordoba explains.

MRO software in a next-gen world

Post pandemic, the industry is seeing an uptick in next-gen aircraft orders and deliveries as older fleets are retired. Earlier this year, Boeing predicted 41,000 new commercial passenger and freighter aircraft over the next two decade while

Airbus sees a need for around 39,490.

Melendez says the growing move toward next-gen aircraft, rapid data integration for operators' fleet induction is a baseline expectation. "With digital data available from OEMs it has become easier and quicker to upload documents, maintenance plans, software, installed component information, and so on. Operators need the flexibility to rapidly ramp up or down their fleet size since the post-pandemic market is still vulnerable to ups and downs in utilisation and demand."

Technologically advanced MRO software is essential for gaining efficiency in both new fleet induction and existing fleet utilisation. In recognition of the transition toward next-gen aircraft deliveries, TRAX eMRO software has enhanced its functionalities for fleet management and the integration and easy access of digital data. For example, Melendez, indicates the system now has a web-based dashboard

Jason Cordoba, CEO - CordobaQ

application – eContent Control – that facilitates easy access to technical records to manage aircraft. The portal also includes controlled access for lessors.

"The app allows aircraft re-delivery records to be assembled in a digital, paperless way, thus providing substantial savings in cost and time for the successful return of leased aircraft, engines, APUs and landing gear," Melendez adds.
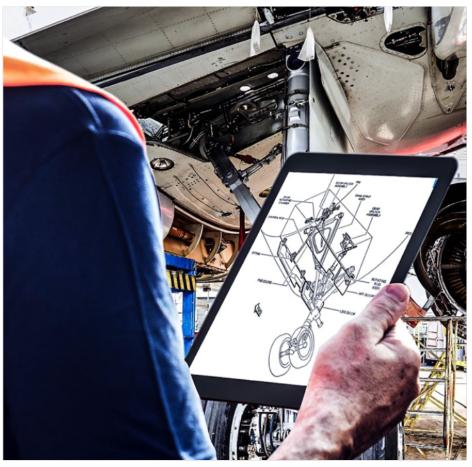
Meanwhile, at Rusada, Mr Purfurst highlights that intelligent maintenance solutions, like the ENVISION software, can closely track all the time and costs spent maintaining a fleet. "Having all this data makes it easy to compare the cost of operating an older fleet versus a newer one. Many operators now have access to these systems and can determine the long-term saving to be made from new generation aircraft."

Another key driver for operators, as Purfurst points out, is being able to take advantage of the health monitoring technology on components in next-gen aircraft. The ability to integrate the data from these aircraft with MRO software will allow operators to transition to a predictive maintenance model for even more cost savings.

The eMobility task control App.   *Photo: TRAX*

Dealing with supply chain conundrums

The MRO sector is facing significant supply chain disruptions but if anything, TRAX has found that the current global supply chain difficulties affecting the aviation industry has served to increase the demand for MRO software that includes exceptional materials management functionality.

Melendez notes that operators and MROs cannot afford to have large stores of inventory on hand. "With such long lead times, bottlenecks, and unexpected shortages, it is a challenge to forecast maintenance and schedule hangars, labour, and parts requirements. Having a robust inventory system that efficiently and accurately controls the acquisition and use of components is a necessity. Such a system requires oversight for ordering, shipping, warehousing, parts picking, inventory counts, and financial tracking,"

he says.

TRAX has focused on enhancing its materials functionality within the enterprise eMRO system and the suite of eMobility apps. For example, the company has rolled out a new EzStock app which allows users to perform inventory transactions through mobile devices and radio frequency (RFID) scanners. Users can complete transactions at the point of use on their wireless device which results in real-time transaction processing, improved data accuracy, and increased productivity.

Purfurst from Rusada believes the best way to combat the current supply chain issues is with more informed decisions. He says organisations need better insight into potential shortages so that they can plan accordingly to avoid disruptions. "The more data they have at their disposal the easier this becomes. This is yet another reason people are moving towards more modern MRO software solutions, which

keep a record of all inventory transactions and utilisation, rather than legacy systems or spreadsheets that do not correctly capture this vital information," he states.

Airlines say they are increasingly on the lookout for technologies that allow them to connect MRO solutions connected to the rest of their operation, and at and CordobaQ, they already see a growing interest in integration between MROs and airlines - a definite growth area. "Usually it's the MRO side of the industry that contacts us, but we are starting to see airlines driving this change. I have recently had enquiries from a number of airlines inviting me to visit their facility for this very reason," Cordoba reveals.

He recently reviewed software connectivity possibilities with an African airline in which his company will engage to develop a project implementation plan.

"We expect to see more of this type of work in the future," Cordoba anticipates.