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MRO & Digitalisation

Digital transformation for MROs has long surpassed being a buzzword

Lease Returns

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Industry Interview

Scott Butler
Ascent Aviation Services

New **digital** platforms drive demand for simplified maintenance records

Airlines need more cost effective and robust solutions for fleet management and maintenance. *Photo: HAECO*

Aircraft maintenance documentation has been slow to digitise but MROs that are increasingly going digital are finding that innovation is creating efficiencies, however, a full transition is still a way off, as **Keith Mwanalushi** finds.

Several MROs have reported that moving to digital processes is making life easier for reviewing records. It certainly makes sense to go digital in today's environment but clearly the MRO sector has been slow to digitise, especially if we look at the sheer size and complexity of OEM manuals, and that is just the start.

During the height of the pandemic in 2020, airlines reportedly reduced their IT budget spending by about 60% from 2019. However, Jason Bennick, President, Digital Innovation Group at GA Telesis feels this had the collateral effect of increasing demand for MRO platform digitalisation, such as engine and landing gear maintenance planning and aircraft fleet management. "In addition, inventory accuracy, supply chain prediction, and digital access to service and repair documentation have become hot targets for digitalisation and latency resolution. If anything, these reduced allocations are making MROs more competitive and forcing them to lean on greater efficiencies to stay relevant, solve profitability, and increase value," he says.

Jason Bennick, President, Digital Innovation Group – GA Telesis

At GA Telesis, they see a marked increase in demand for quicker delivery turnarounds and a higher volume of repair intake. "As a result, we invest a lot of time and effort to innovate our MRO processes to digitalise as much as possible, from the shop to logistics and delivery."

Over the last year, GA Telesis has talked with companies about digital solutions to support paperless processes, but Bennick reckons this transformation will take time. "Because of legacy systems and the decades of massive paper documentation volume, it is likely the market is still years from a complete transition. Still Bennick

MROs and software providers must leverage mobile innovations.
Photo: HAECO

suggests.

Following a challenging last few years several airlines cut discretionary spend, and Summit Chan, Group Director Corporate Development at HAECO observed that MROs also suffered tremendously as a record number of aircraft were grounded, depressing maintenance demands – "We have seen that the down cycle has negatively impacted MRO industry digitisation progress temporarily during the peak of the pandemic. At HAECO, we continue to invest heavily in enterprise applications and digital solutions to support our customers."

Chan believes airlines need more cost effective and robust solutions for fleet management and maintenance planning. He stresses that these solutions require availability of quality data in digital form and that for several airlines, so much data is still kept un-structured on paper. "At HAECO, we have implemented electronic work cards and obtained the approval of electronic signature of the e-work package with one of our strategic customers, paving the way for paperless processes. We have an aggressive plan to expand the scope to cover all our airline customers who are e-work card ready."

Meanwhile, at aviation maintenance and engineering software specialists TRAX, they have not seen across-the-board budget slashing by clients for MRO IT spending. "It has, in fact, been very uneven with some of our customers pushing ahead with their digitalisation and paperless plans even during the height of the pandemic," reports Nelson Capote, Director of Software Development, Integration Team at TRAX.

"Many of our airline and MRO customers displayed a strong willingness to implement technology spending projects that they believe would drive future earnings and efficiency. They viewed the slowdown and federal government subsidies as an opportunity to press forward on their technology roadmap and take advantage of underutilised labour capacity while many flights were grounded."

HAECO Group Director Corporate Development, Summit Chan

Capote notes that appetite for technology improvements has only grown as the industry continues – albeit slowly -- to revive. "TRAX has found that we have to ramp up to meet this demand from our existing and new customers."

Seat Assembler reviewing drawings on HOUDINI.
Photo: HAECO

OEMs and operators are increasingly sharing data and incorporating more sensors and Capote feels software developers would be remiss not to take advantage of these extraordinary amounts of aviation operator data to build a more dynamic and predictive software solution. "The difficulty is in developing constructive algorithms that can transform statistics into dynamic and beneficial predictions. TRAX plans to use these increased amounts of data by taking advantage of innovative technologies such as machine learning, predictive analytics, and virtual reality digital twins that extend our software's utility beyond historical reliability data and formulas currently in use," he explains.

As an example of the benefits of new digital platforms to aid in fleet management, Capote explains that a customer collaborated with TRAX on the development of a portal to streamline records management for their aircraft fleet including maintenance and compliance data for leased planes. "Aircraft resale value can be diminished due to poor record keeping. Also, end-of-lease transfers and provision of required documentation can be time consuming."

The customer then reported that the TRAX eContent Control application led to 60 to 80% savings on the lease return process, representing U$100,000 per aircraft in savings. Capote noted that additional savings include a 60% reduction in off-site physical data storage, and an 80% reduction in human errors due to digital records and better and easier facilitated auditing.

Nelson Capote, Director of Software Development, Integration Team, TRAX

"While there are many mobile maintenance apps available, most do not have off-line capability with automatic synchronisation when in Wi-Fi range. This was a deal breaker for TRAX customers and its why we developed our suite of apps to have this capability."

Nelson Capote, TRAX

David Purfurst – Global Pre-Sales Director at Rusada

> **We have the technologies in place to improve efficiencies where they are needed, but for airlines, adopting these and integrating them into their operations takes time and patience, especially for the larger and more complex carriers.**
>
> *David Purfurst, Rusada*

Embracing digital platforms

Airlines will increasingly turn towards digital platforms to improve functions such as fleet management and maintenance planning, including moving to paperless processes. "This has been a goal for many in the market for some time, but it seems to be a slower process in the aviation industry than other markets, comments David Purfurst – Global Pre-Sales Director at software developer Rusada. "We have the technologies in place to improve efficiencies where they are needed, but for airlines, adopting these and integrating them into their operations takes time and patience, especially for the larger and more complex carriers," he adds.

Over the last two years, Rusada developed and released three new mobile applications to improve many of the process-intensive activities that happen away from a desk. Purfurst explains that these include ENVISION Tasks for executing maintenance, ENVISION Stock for managing inventory, and ENVISION Flights for pilots and flight crew. "These all provide key information and technical documentation in a streamlined mobile format for working on-the-go.

"We have found mobile solutions are a good way to bridge the gap of adopting new technologies into the operation, and usually once the benefits are seen, more intensive changes follow," Purfurst states.

Rolandas Dirgela, CDO at Magnetic Group points out that digital platforms, paperless processes and most importantly seamless connection for data exchange between interested parties will be the winning combination in creating new revenue channels and improving current ones.

Dirgela says all the data necessary to accomplish the task or make the decision must be available at the fingertips and accessible in few clicks no matter where you are – "distributed enterprise is a must, and we are going there."

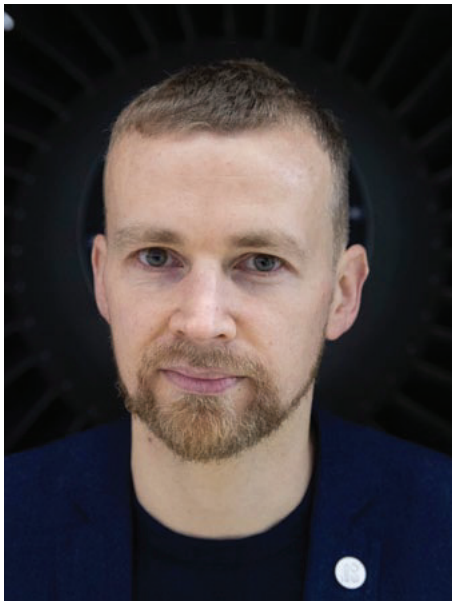
The MRO industry digitalisation progress is visible and Erkki Brakmann, CEO at SkySelect feels the process is unstoppable because airlines have realised that by using smart technologies, they can improve their bottom line.

At SkySelect, they have seen airlines increasing the need and interest in digitising MRO operations and Brakmann feels that airlines have realised that old processes will not support their strategic goals. "The issue is that change management is often complex and slow, especially now that there is a lack of people." To overcome some of these challenges players like SkySelect are taking a unique approach by combining technology with expertise, so organisations can benefit from an eProcurement-as-a-Service (ePaaS).

"The advantage of this approach is that it overcomes the adoption problem, and an airline or MRO can transform their supply chain overnight instead of in the six to twelve months that it typically takes to implement new technology or platform." Secondly, he says they get instant access to AI, Big Data, and Cloud to enhance the visibility of their supply chain.

Brakmann further reminds that when implementing something new, there is always a switching cost that needs to be considered – "That is why we offer a risk-free, lightweight pilot to see the real

Rolandas Dirgela, CDO of Magnetic Group



Erkki Brakmann, CEO at SkySelect.

benefits of digitisation by using ePaaS. It takes a few hours to get set up, and the airline or MRO can run this in parallel to their existing process without having to replace anything immediately."

GA Telesis is moving in the direction of leveraging mobile application and currently has several initiatives in development to manage greater mobile access to data and improved transparency on operational movement and MRO analytics. "Without giving too much away, moving everything to a connected, secure, low-latency cloud-based operational framework of data and management mobility is critical for every MRO moving forward," says Jason Bennick.

Over at HAECO, they have launched mobility solutions, deploying more than 2,000 iPads to frontline engineers and mechanics to access the most up-to-date technical manuals and electronic work cards digitally, as well as to improve operational efficiency and quality of data captured. These mobility solutions include material and technical requests, non-routine task cards, and access to knowledge database for previous technical findings on the go, also enabling the customers to have more real-time information of the aircraft – "We are also trialling smart glasses to enable visual access to technical data," reveals Chan.

Also, the TRAX eMobility apps are an example of how mobile add-ons to an M&E software system makes the maintenance process more efficient and paperless. Capote explains that using the electronic technical logs apps, a pilot can raise a defect during a flight, which when connected through the onboard Wi-Fi system, streams down to the ground and presents a notification to a technician assigned at that flight's location. The mechanic can prepare in advance from wherever they are located to review the OEM manuals on their app, order replacement parts in advance, follow the aircraft status and arrival information, and so on.

"While there are many mobile maintenance apps available, most do not have off-line capability with automatic synchronisation when in Wi-Fi range," Capote indicates. "This was a deal breaker for TRAX customers and its why we developed our suite of apps to have this capability. Access to real-time information is critical to decision making and on-time performance in the fast-paced aviation world."

New generation aircraft have the systems to make predicitive maintenance a reality. Photo: Airbus

Documentation and data integration via upload functions and APIs is already prevalent in the MRO industry, and Capote notes that TRAX products have the functionality to automate data ingestion and exchange. Its eMRO M&E ERP system has an integrated digital documentation management system TraxDoc module for OEM data, internal documents, AMM, IPC, etc. for multiple format types (SGML, XML, video, etc.). The eMobility apps include a digital documentation AeroDox app that integrates with the other mobile apps to allow users to search, view, and attach documents. He says the lack of standardisation for digital data exchange in the aviation industry is still a great challenge today. To overcome this, TRAX participates in groups such as the Air Transport Association of America (ATA) e-Business forum that is facilitating the development of industry standards such as Spec2500 and S1000D.

There is still a buzz around digital solutions for initiative-taking and predictive maintenance and Dirgela from Magnetic is convinced this will be the new normal. "All the industries around us are moving there and some already did it. We have it in the plans, unfortunately we cannot move alone as the data quantity and quality will be the key to make predictive maintenance happen at its best and for this we need close collaboration between airlines, OEMs, and MROs," he states.

New generation aircraft now have the systems in place to make predictive maintenance a reality. As such, Rusada for instance are developing the ENVISION software with this in mind, allowing users to integrate data from the OEM platforms and incorporate it into their maintenance planning and forecasting.

Through a central HAECO Data Platform, the company is collecting and pulling together all the maintenance data they have access to. Chan believes HAECO is in a unique position in that it has maintenance data for several airlines and aircraft types, enabling data analytics to play their role to support predictive maintenance. "We believe by pulling available data from the airline and MRO together, we will create additional insights on maintenance planning optimisation. We are actively working with some strategic customers on digital initiatives to explore these areas together," he says.

Due to ongoing digitisation efforts and rising technologies, the fleet maintenance, and parts purchasing process can be tangibly improved. This shift allows organisations to lower costs, keep operations lean, and their movements agile. The key is to build a digital ecosystem so all IT technology resources can function as a unit.

And as Brakmann from SkySelect sums up, "those that don't adapt and leverage digital technology will have a hard a time competing in this highly competitive market to stay afloat."