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Leveraging digital in the aviation aftermarket

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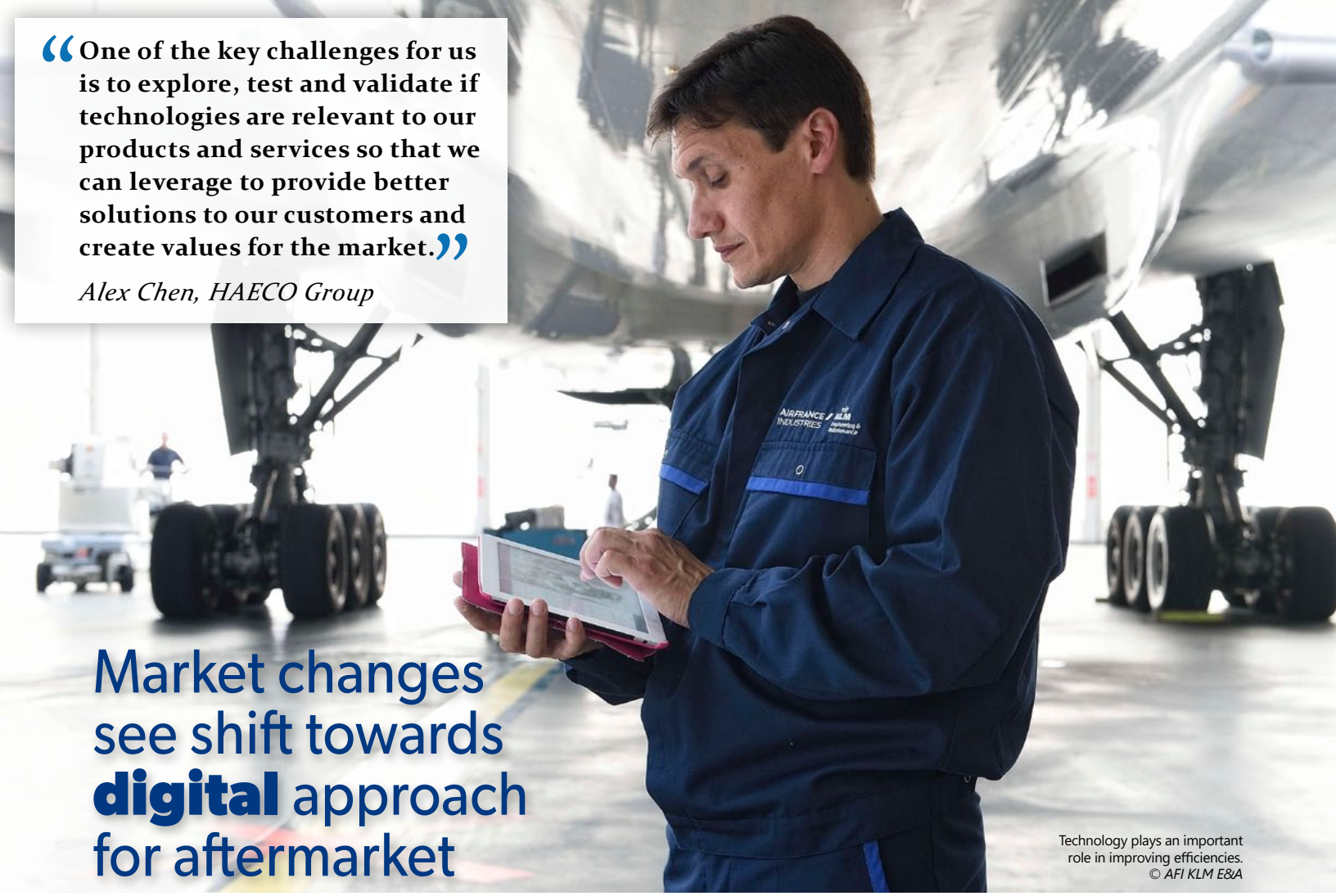


Market changes see shift towards **digital** approach for aftermarket

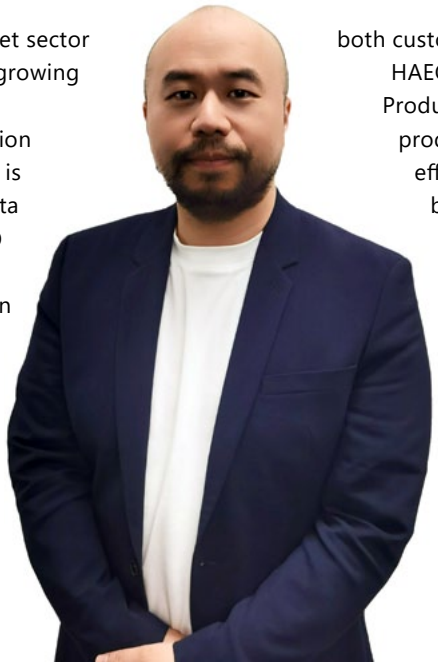
Technology plays an important role in improving efficiencies. *© AFI KLM E&A*

The shift to digital is gearing up in the aviation aftermarket sectors including an increasing focus on leveraging technologies to achieve direct gains on operational cost and efficiency.

By Keith Mwanalushi

Digitalisation in the MRO and aftermarket sector has been painfully slow but there is a growing momentum and industry desire to see increased implementation, however, the aviation industry faces several obstacles, one of which is its heavy reliance on manual processes for data exchange and interactions. Alex Chen, HAECO Group General Manager, Digital - feels this is primarily due to the numerous communication channels among various stakeholders involved in aftermarket services.

Additionally, he says data exchanges are limited by outdated and fragmented systems, resulting in inadequate visibility of the aircraft and its components throughout the end-to-end process. "However, these inefficiencies can be addressed through digitalisation of customer interactions, centralisation of data sources on a single platform, and enhanced data visibility for both customers and internal teams," Chen states.



Alex Chen, HAECO Group General Manager, Digital

HAECO recently developed a Minimum Viable Product (MVP) of its customer gateway digital product, which facilitates more efficient and cost-effective orchestration of airframe MRO services by connecting people, processes, and data.

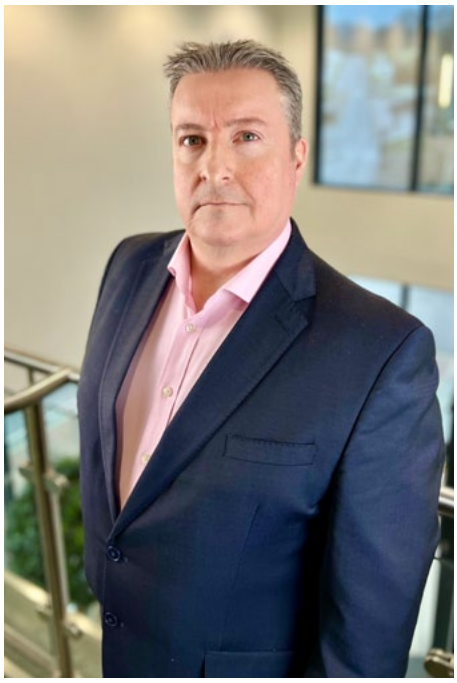
Chen believes the first step is to leverage digital products to drive efficiency, operational performance, and value propositions to customers in HAECO's service and product offers – "This will bring direct gains on operational cost and efficiency as well as to our customers. These digital processes may not land direct revenue growth but will lead to efficiency gains and capacity release for better asset utilisation," he explains.

In addition, HAECO plan is to start their digital products on the data side. "We plan to connect our segments and entities data

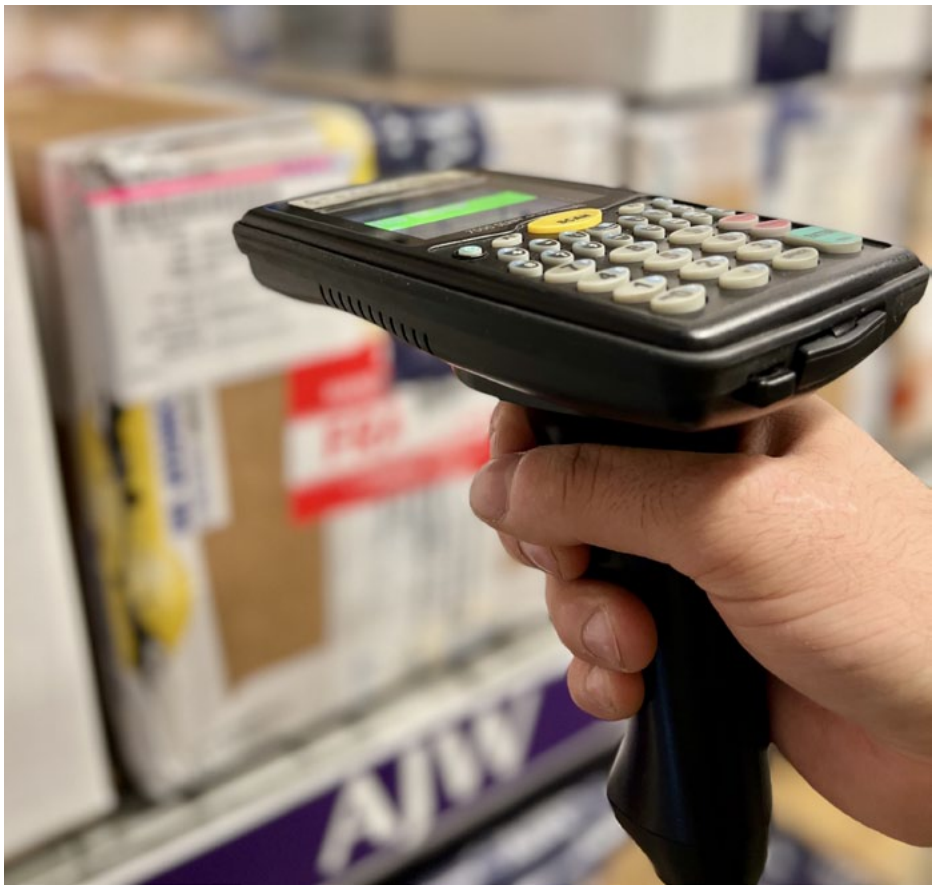
together as well as connecting to external data from customers and suppliers." Chen indicates that this will further unlock capability to better understand the market and customers, so that they are able to answer customer needs and tackle new opportunities more intelligently and effectively – "This will potentially create new revenue streams on top of our current business portfolios," he says.

Digitisation can certainly offer a range of solutions to overcome the challenges faced by the aviation industry in aftermarket services. Craig Macpherson, Chief Information Officer at AJW Aviation points out that the use of digital technologies like predictive maintenance, data analytics, and artificial intelligence, for example, can help to identify issues early on and prevent unplanned maintenance tasks. "This increases aircraft reliability and reduces downtime for maintenance, leading to cost savings and increased efficiency," he notes.

Digital transformation helps to streamline the supply chain with tools such as dynamic pricing models, procurement forecasting, blockchain, and RFID (radio frequency identification) tracking. Macpherson says by using these tools at the MRO facility at AJW Technique in Montreal, they enable remote diagnostics and repair, reducing the need for costly onsite visits and improving the speed of repairs to ensure timely and accurate delivery of spare parts.



Craig Macpherson, CIO at AJW Aviation



Leveraging digital technologies can help the industry overcome common time-related challenges. © *AJW*

AJW have witnessed the aftermarket service industry undergo a transformation in recent years, with digital processes playing a key role in enabling businesses to deliver services more efficiently and effectively and growing business revenue.

Macpherson highlights that one of the most significant developments has been predictive maintenance, which allows businesses to predict equipment failures before they occur, schedule maintenance before costly breakdowns, and reduce downtime leading to increased revenue and customer satisfaction. "By using remote monitoring tools, we keep track of equipment performance and identify issues before they become significant problems, thereby reducing downtime and maintenance costs."

He adds by improving the customer experience through digital transformation, businesses can optimise their services and operations. "Leveraging digital technologies is crucial to remain competitive in the aftermarket services industry," Macpherson stresses.

Kevin Wall, Chief Commercial Officer at APOC Aviation comments saying the sale and integration of digital and software packages has developed to become a significant market. "When we think of aftermarket, we traditionally think of parts and labour, however the provision of digital tools has become ever more lucrative as a business segment in itself," he states.

Wall feels digitisation is central to transformative business models that deliver enhanced service offerings, which are fast becoming expected as the new normal. He says increased value-added through consistent and efficient delivery deepens relationships and ultimately expands revenue. "Margins can be increased too, as cost of labour and TATs

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>
> *Kevin Wall, APOC Aviation*

reduce. Inventory can be better managed, freeing up valuable capital for further investment. All aftermarket providers – aircraft maintenance, parts supply chain, logistics – need to embrace new technology as it will define our industry in the future."

In addition to preventative maintenance, Wall mentions automation as another area where great advantages are being seen, ranging from robotic inspection to process automation, he feels the industry can benefit from the use of AI driven tools to increase efficiency in parts ordering and handling, and minimise the effects of continued labour shortages in the sector.

At APOC, the IT system shows real-time stock levels, actual live requirements backed up with minimum or maximum stock level control. "As we continue to invest in narrowbody airframes, we use historic data to predict future requirements and ensure the typical units are in stock and ready to go, in line with our customers' requirements," he says.

Abdol Moabery, Chief Executive at GA Telesis

Abdol Moabery, Chief Executive at GA Telesis argues that the digital process is not the driver for generating revenue from aftermarket services – "It's quite the opposite. The oxygen that feeds the aviation ecosystem are the airlines, and the goal should not be to increase revenue at their peril. Our goal must be to reduce their cost, and in order to do that, we need to create tools to reduce their operating, maintenance, and parts costs."

Moabery states that the goal must be to create and permanently install a massive amount of efficiencies into the airlines' systems that enable them to consume fewer parts and maintenance and therefore reduce cost and potentially reduce revenue for us all – "Our profits will increase from the efficiencies we will have to build."

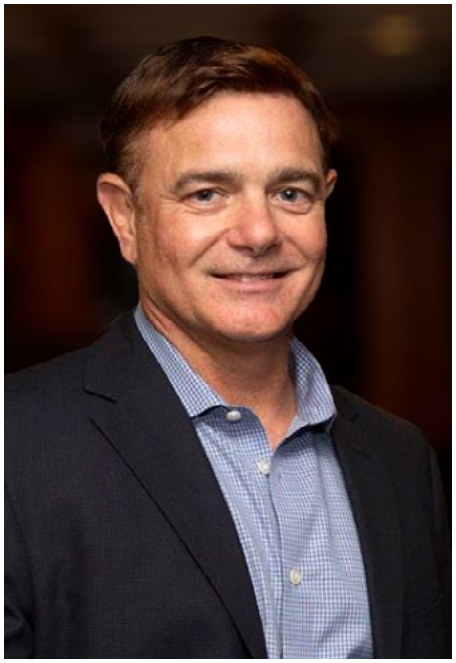
He feels that OEMs are leading the way in the aftermarket, but they operate in a silo, so airlines and industry participants cannot gain the full benefit. "I have seen some robust technology, but what good is it if it is only visible to a few? We need to create an open network, feed off one another, and invite the crowd into the discussion and together we can solve a lot more than we can alone," Moabery states.

Interestingly, for the last 23 years, San Diego-based Component Control has been on a mission to digitise the aviation aftermarket. Daniel Tautges, Senior Vice President says there are several core components within the ERP that digitise and records workflow documents, processes, traceability, contracts, purchase orders, inventory, and sales. "Several new mobile and web-based applications tailored for receiving, warehouse, sales, and work packages are also targeted at

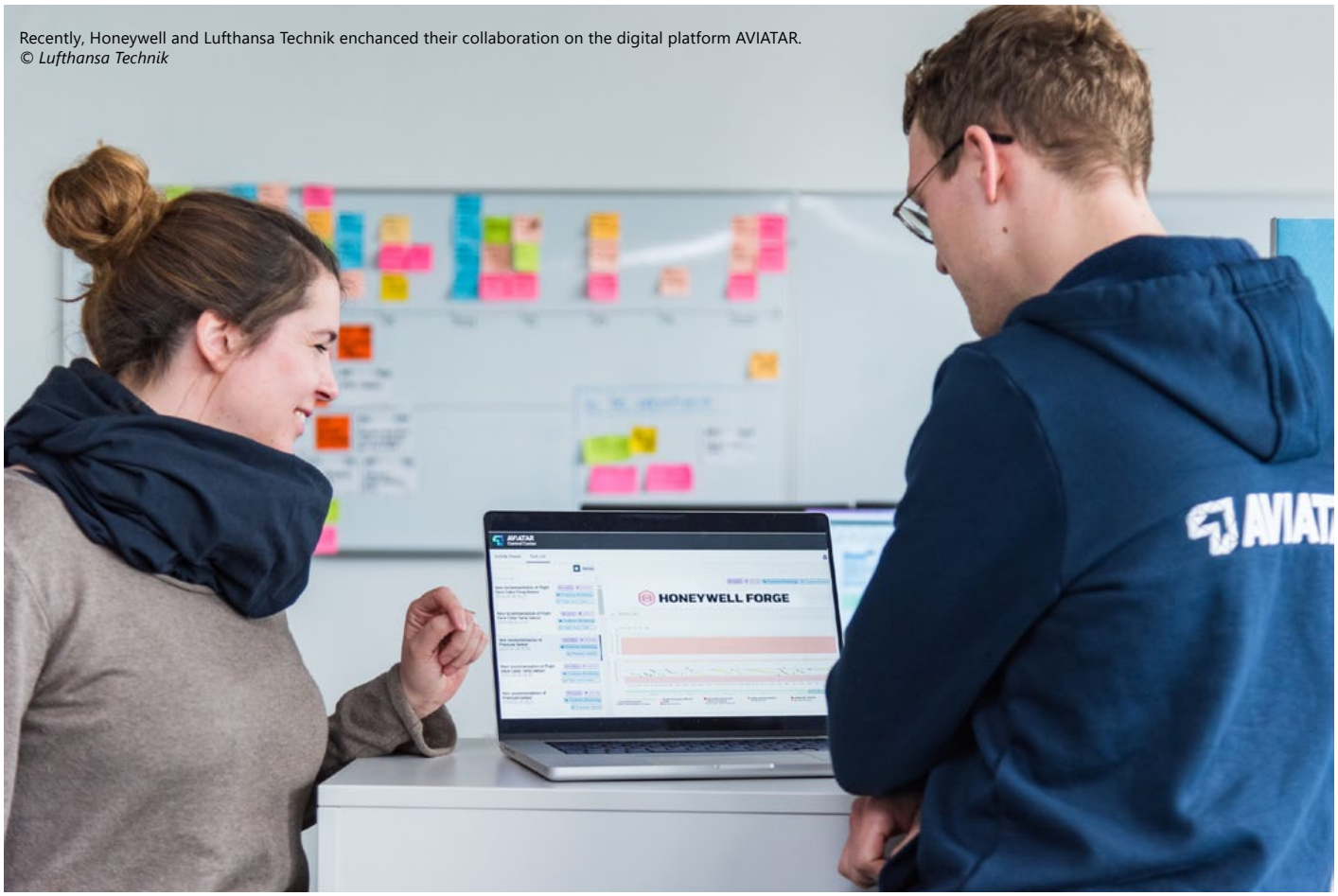
Kevin C. Wall, Chief Commercial Officer – APOC Aviation

further digitisation and optimisation of resources," he tells.

Tautges points to several benefits of digital processes that will grow aftermarket services revenue including the optimisation of human resources, as well as improved, repeatable and enforced workflows. He mentions that the elimination of paper-process and "swivel



Daniel Tautges, SVP at Component Control



Recently, Honeywell and Lufthansa Technik enchanced their collaboration on the digital platform AVIATAR.
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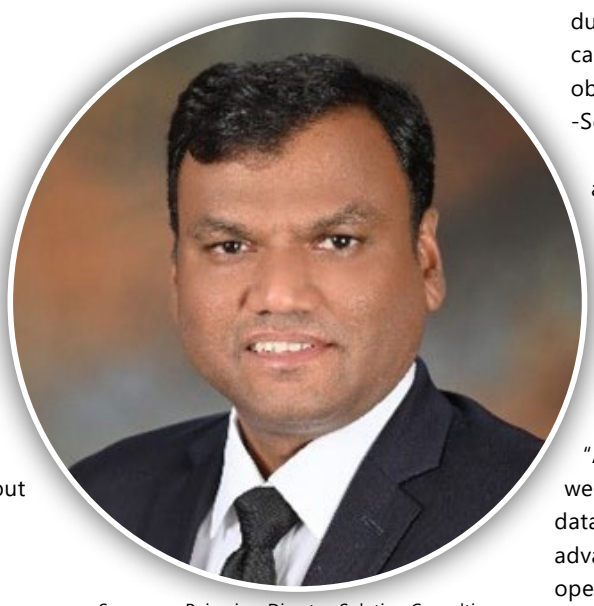
chair" data entry can be achieved across the organisation allowing technicians, sales, warehouse to enter data once and leverage to provide KPI metrics for process improvements, faster response times, better scheduling, higher efficiency of supply chain and reduced cost of materials. He says all these factors will provide greater to line and bottom-line revenues.

Tautges feels there are still issues around digital adoption and converting to a true paperless business in the market which is rooted in the comfort of the current paper processes. "Change is never easy in a mature business and several key, and in high demand roles, are reluctant to change but change is coming as we are continuing to build out these solutions."

At Ramco Systems, they believe empowering mechanics through mobile based solutions enable them to access technical documents, real-time troubleshooting, and request parts, tools and thereby increasing direct labour utilisation. "We have seen cases where airframe MROs takes two weeks to process the customer work package received in pdf format before it can be handed over to production. By leveraging the automated pdf task card processing, the duration to process the work package can be reduced by at least 70 percent," observes Saravanan Rajarajan, Director -Solution Consulting at Ramco Systems.


Saravanan Rajarajan, Director-Solution Consulting at Ramco Systems

The confluence of AI/ML, advanced analytics, mobile, and 5G technologies will be game changers that enable MROs to achieve higher operational efficiencies. Rajarajan says integrating ERP systems, EFBs, mobile and wearable technologies, and embedded IoT and external systems are seamlessly interlinked. "As organisations accumulate a wealth of structured and unstructured data and embrace these technological advancements, MROs are well-poised to operate efficiently with their resources," he adds.

Challenges with aftermarket services

At Ramco, they've highlighted the convergence of digital initiatives in the following areas that are helping to overcome the challenges in aftermarket services.

Digitalisation of core operations: The rapid progress and maturity of mobile technologies and digital content availability of technical documentation, including manuals and job cards, has made shop floor digitisation a reality. Mobility applications are becoming mainstream for MRO software and the use of mobility to access technical documents, record time, recording findings, process requests for parts, and engineering advice facilitates real-time system usage and reporting. This has an exponential impact on improving productive hours, data accuracy, and data insights.

Automation of manual and repetitive tasks: Aviation maintenance processes generate a wealth of data about the aircraft engine defects, parts consumed, labour hours, and elapsed time to carry out the repair and overhaul procedure. Accumulated over time, this data can become a goldmine of information to gain insights. With its AI/ML capabilities, Ramco derives insights into all key processes such as work order planning, production planning and scheduling, optimised for target objectives of cost or TAT optimisation or even both.

Integrated eco-system: There is much interdependence in the industry where operators/OEMs/MROs/maintenance departments must work seamlessly. MRO Software needs to be interoperable, integration-ready, deployable in hybrid models, and facilitate the management of an integrated automated business process that transcends organisational boundaries.

According to Chen, HAECO see challenges in this highly regulated industry with a generally conservative approach to adopting new technologies and the speed of adoption may not match the expected pace. However, he sees a common priority in the whole eco-system that OEMs, operators and MROs must drive digital transformation, build digital products and pilot new technologies in their own ways. "One of the key challenges for us is to explore, test and validate if technologies are relevant to our products and services so that we can leverage to provide better solutions to our customers and create values for the market. We continue to pursue to further enhance HAECO's technology stack as the foundation to serve our customers," Chen elaborates.

Leveraging digital technologies can help the industry overcome common time-related challenges.
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A keen observation at AJW is that several companies have highly trusted systems and processes in place, and this can make digital integration difficult as the systems being used are often not based on the latest technologies. Macpherson from AJW says were these businesses to adopt the innovative technologies, it would require a change in their already well-established procedures e.g., a shift from the use of email to self-service tools.

Macpherson states: "An issue relating to self-service tools is that the customer is required to enter the data. As this may be viewed as increasing employee workload it makes adoption a challenge, especially when everyone is offering their own portal. As such, there would need to be a compelling case and benefit to them, to encourage an operational shift away from the legacy systems within their organisations."

Data security is a further roadblock in the adoption of digital technologies and at AJW they highlight certain sectors of the industry that handle sensitive data, including customer information, financial data, and flight data. "Ensuring the security of this data is crucial to maintaining the trust of customers and stakeholders. Cybersecurity threats are constantly evolving, and companies are acutely aware of the need to prevent data breaches," Macpherson adds.

Lastly, the aviation industry is known for its extreme regulatory and compliance standards, and new digital technologies may require regulatory approvals before implementation, and this can be time-consuming and costly.