Civil Aviation MRO: Fast changing market and requirements demand a new approach to MRO

From the advent of new manufacturing materials to new entertainment systems, the civil aviation support industry is changing dramatically, and these changes have a knock-on effect on the companies that specialize in maintenance of aviation assets, component repair shops, as well as original equipment manufacturers (OEMs). Here, Kevin Deal, Vice President for Aerospace & Defense IFS North America explains how all parties involved in Maintenance, Repair and Overhaul (MRO) can adapt and remain competitive in a landscape of rapidly advancing technologies.

Given the numbers of aircraft in service today and how critical passenger safety is, MRO has now evolved to become a major market within aviation. Visiongain predicts that the value of the commercial aircraft MRO market in 2014 will reach a huge $53.4bn. It expects this trend will continue but the market will face many new challenges, including from some OEMs such as Boeing looking to increase their market share. Traditional third party MRO providers will need to adapt to this changing market in order to remain competitive.

The drivers changing the market
New technology coming into the sector in the form of composite materials, carbon fiber, super-alloys, avionics and advanced in-flight entertainment, each brings to the industry widely different MRO demands. Add to this the fact that many items are becoming commoditized and therefore disposable, and it's clear that these changes are increasingly affecting how manufacturers deliver into the industry.

But what's driving these changes? The market is increasingly being driven by a need to improve fuel efficiency and reduce costs wherever possible. Combine this with the fact that some OEMs are starting to offer MRO themselves – particularly where they supply a state-of-the-art part – and that some airlines are beginning to reduce outsourced work by bringing maintenance back in-house, and it is clear that third-party MRO companies must keep up.

And this is a scenario we are familiar with in our daily lives. Take your local mechanic at a small auto garage, for example. He has to keep up to speed on changing technology with all of the cars available in today's market. In previous years, we all would have taken our cars there to be serviced after the first three years of ownership had passed, but increasingly we are having to stay with the OEM as technology advances and local, smaller shops can't keep up with maintenance requirements.

So how does this affect MRO in the civil aviation market?

MRO essentials – mixing old with new
With new technologies coming into the market, there is a need for what could be termed an effective 'duplication' of capabilities.

For example, carbon fiber is coming in to the market, but a lot of companies are still using aluminum on some of their planes. As a result, MRO shops have to be able to deal with both forms of material simultaneously. They must be able to monitor and manage maintenance programs to ensure that the correct metrics are available to evaluate different parts in their lifecycle in real-time.

This by its very nature demands increased agility in order to cope with such change and that requires an advanced ERP support system. It is clear that manually-driven spreadsheets and paper-based management systems are not up to the requirements of the civil aviation market today.

Complexity looking for a simple solution
In order to track certain processes – such as where certain parts are in their lifecycle, the cannibalization of another aircraft, or how certain suppliers are performing – third-party organizations in particular need to have a comprehensive support solution in place to manage these successfully. And the more holistic an ERP solution is, the more simple it becomes to extract management information.

Integrating data and metrics are both key in all of this – being able to track the cost of labor versus the cost of an individual component, all cross-referenced to the need for the plane to be returned to service at a certain time – all data must be in one place in order to achieve this visibility and for smaller MRO shops to remain compliant with the requirements of larger airlines. In order to have access to such data in real-time, smart devices offer a great method of having this information to hand at any time.

Mobile smart devices in today's market
Nowhere is the use of smart devices more practical – offering more opportunity to leverage the huge investments made by businesses in enterprise software systems – than in the aircraft MRO world.

Today's generation of MRO engineers grew up with computers in the home, cell phones, and more recently smartphones and tablets. In an age of the bring your own device (BYOD) trend, mobile applications can help avoid costly or extensive training – another key benefit to the use of mobile devices in the MRO industry.

Tablets are naturally adaptable to the support of general MRO, and are maximizing efficiencies and time savings in the MRO and broader support processes by giving the technician the ability to approve a work order, view stock availability or check repair history at the touch of a screen.

There are several areas where mobile devices can offer this improved MRO capability. Aircraft can ship with a lot of paper maintenance manuals – mobile devices offer these on a device in a technician's pocket. This allows for better revision control and ensuring that engineers are working with the latest revision of documentation. Mobile devices can also enable work to become more interactive via the inclusion of videos and for example 360 degree rotational images.

Another area is accessing the repair history of the specific aircraft or trends across the fleet type or of the specific asset itself. Where necessary, mobile

devices offer a window to the broad based ERP software, its maintenance processes, sign-off, supply chain and configuration management. In short, a mechanic can target the exact information he or she needs to carry out a repair at any location, follow a rigorous MRO process, whether it's within a sprawling hangar complex, or on a tarmac at a remote location.

Agility is the answer

In many instances, it's the engineers themselves who are driving a lot of changes in the MRO market, forcing companies to enable the use of smart devices in particular. But by enabling mobility on the shop floor – or in the cockpit – such organizations will see significant benefits in terms of remaining competitive in the market.

Mobile applications combined with a sophisticated ERP support solution will help MRO shops to keep up with the pace of change we are currently seeing in the market, and help them to move forward and embrace further changes in the future – it's all about agility.