MROs are a key factor in overall flight safety. SMS will help these organizations mitigate risk before it manifested at the operations level. Image by Joy Finnegan.

By James Careless

HOW MRO IT SYSTEMS ENSURE COMPLIANCE WITH SMS AND OTHER REQUIRED PROGRAMS

AN EXCLUSIVE AVIATION MAINTENANCE VIRTUAL ROUNDTABLE

Now more than ever, airlines and MROs need to ensure that their operations are complying with government regulations concerning safety management systems (SMS) and other relevant aviation policies. The trouble is that doing this manually is practically impossible in this data-saturated age. To ensure that they are complying with the rules at all times — and can prove it — airlines and MROs need to harness the power of their MRO IT (information technology) platforms on an ongoing basis.

To gain insights on how MRO IT systems can fill this gap, Aviation Maintenance spoke with two industry experts. They are Debi Carpenter, executive director of the Air Charter Safety Foundation, and Jason R. Starke, vice president of safety and standards with Baldwin Safety and Compliance. Here is what they told us, as compiled in this Aviation Maintenance virtual roundtable.

Aviation Maintenance: Let's begin with you telling us about your SMS and compliance IT platforms for MROs.

Debi Carpenter: At ACSF, we are committed to advancing safety and compliance across the aviation industry, including charter, business, corporate, and advanced air mobility (AAM) operations. Our tools, such as the safety management system (SMS), ASAP,

and the recently launched IAS Lite — a streamlined version of our Industry Audit Standard — help operators of all sizes manage safety risks and meet regulatory requirements like FAA Part 5 and ICAO Annex 19. These platforms integrate risk management, incident reporting and performance monitoring, providing a comprehensive yet accessible solution for continuous safety improvement.

As a non-profit, we offer these solutions at affordable pricing, acting as an extension of our members' safety teams. In addition to our technology-driven tools, our Member Assistance Program (MAP) provides expert guidance to help organizations navigate compliance and safety challenges.

Jason R. Starke: The Baldwin Safety and Compliance platform is a comprehensive, ICAO and Part 5 compliant safety management system (SMS) software solution. The application allows users to customize workflows enabling the software to scale to the organization's SMS. All SMS components and elements are addressed by our platform.

Aviation Maintenance: What are the main requirements that your IT products are addressing for SMS and compliance systems for MROs?

Jason R. Starke: Our software not only complies with 14 CFR 5 requirements but has a very robust quality assurance function

Below: Jason R. Starke
Baldwin Safety and Compliance

Above: Debi Carpenter
Air Charter Safety Foundation

incorporated as part of safety assurance. MROs can utilize this function to schedule and execute audits, track recurring defects, and maintain other quality assurance forms.

Debi Carpenter: Our programs address several key requirements for SMS and compliance systems. In bullet form, they include the following:
- Risk Management: Enabling MROs to identify, assess, and mitigate safety risks within their operations.
- Regulatory Compliance: Currently, our approach to regulatory compliance is integrated within our SMS tools. These tools are designed to help operators and MROs manage safety risks and maintain compliance with regulatory requirements by providing a structured framework for safety practices and documentation.
  In addition to our SMS tools, we offer a Member Assistance Program (MAP) that provides access to experienced coaches or contract auditors. These experts guide members through the compliance process, helping them understand and meet FAA, and other relevant regulatory requirements. This personalized support ensures that our members can achieve and maintain compliance effectively, even in the absence of a dedicated IT platform.
  This approach allows us to offer both technology-driven solutions and expert human support, ensuring comprehensive compliance assistance for our members. Our MAP includes:
- Incident Reporting and Analysis: Facilitating the reporting, analysis, and follow-up on incidents to prevent recurrences.
- Data Management and Reporting: Standardizing data collection and providing robust reporting capabilities for continuous safety monitoring and improvement.

Aviation Maintenance: Why is it important to fulfill these requirements for MROs?

Jason R. Starke: Regarding SMS, while 14 CFR 145 organizations were not included in this last mandate, it is speculated that they will be included in the next. MROs are a key factor in overall flight safety, therefore an SMS would help these organizations mitigate risk before it manifested at the operations level.

Debi Carpenter: Fulfilling these requirements is important for several reasons:
- Safety Assurance: Properly addressing safety risks through a well-implemented SMS is essential to prevent incidents and accidents in operations.
- Operational Efficiency: Efficient data management and compliance processes reduce operational disruptions, allowing MROs to focus on providing high-quality service.
- Market Competitiveness and Company Culture: MROs that demonstrate strong safety and compliance practices not only gain a competitive advantage by attracting and retaining clients, but they also foster a positive company culture. By prioritizing safety and compliance, organizations reinforce their commitment to the well-being of their employees and the integrity of their operations, ultimately contributing to a more cohesive and motivated workforce.

Aviation Maintenance: What are the challenges of creating such products and keeping them up to date? How do you do this?

Jason R. Starke: Safety management systems need to be able to be scaled to an organization's size and complexity. However, many SMS solutions do not allow for scaling and ultimately force the organization to conform to the software requirements rather than their own. Our solution was created to allow the needed flexibility and configurability for organizations to create workflows that match their complexity.

Debi Carpenter: Creating and maintaining SMS and compliance technology platforms involves several challenges. To once again explain this using bullet points, they include:
- Evolving Regulations: Aviation regulations change, it requires updates to the platform to ensure ongoing compliance. We address this by maintaining close communication with regulatory bodies and incorporating updates as they are issued.
- Customization Needs: Different organizations have varying operational requirements, so our platforms need to be flexible enough to accommodate these differences. We achieve this through customizable features that allow users to tailor the platform to specific needs.
- Data Security: Ensuring the security of sensitive data is critical, and we invest in advanced measures to protect our clients' information.
- Integration with Existing Systems: Many MROs use multiple IT systems, so our platform must integrate seamlessly with these systems. We work closely with our clients to ensure smooth integration with minimal disruption.

Aviation Maintenance: What are the trends in SMS and compliance software, in terms of what MROs are asking for and what you are providing?

Jason R. Starke: The trend for SMS software is better data analytics and the incorporation of AI/ML. Our platform is working to incorporate both to create a solution that stays on the cutting edge of safety management applications.

Debi Carpenter: The trends we are seeing are as follows:
- Automation: There is an increasing demand for automated compliance processes, reducing manual effort and

minimizing errors.
- Advanced Analytics: Software that offers powerful data analytics capabilities to predict and prevent safety issues proactively.
- Mobile Accessibility: With a more mobile workforce, there is a growing need for platforms that are accessible from any device, allowing staff to input data and access reports on the go.
- Integration: Solutions that integrate well with existing enterprise systems, ensuring a seamless flow of data across operations.
- Customizability: With diverse operations, there is a demand for software that can be tailored to meet specific needs and preferences.

Aviation Maintenance: How well is the airline/MRO market receiving your products?

Jason R. Starke: While we do have a relatively small number (compared to flight operations) of MRO clients, we are seeing more interest as the FAA's focus is turning towards this group to implement SMS. Those that have incorporated our product have stated that it is highly configurable and intuitive.

Debi Carpenter: While we currently do not have sole MRO members, we do serve operators that have MRO divisions. Feedback from clients indicates that our platforms have improved their safety and compliance management, resulting in better operational efficiency and enhanced safety outcomes. Many of our members appreciate the flexibility and comprehensiveness of our solutions, which have helped them meet regulatory requirements and improve overall performance. As we continue to refine our offerings based on user feedback, we are committed to expanding our reach and anticipate broader adoption across the industry.

Aviation Maintenance: Finally, what advances do you see coming to the MRO IT segment, in terms of product capabilities, in the future?

Jason R. Starke: I believe we will see more AI/ML in terms of advancement. These will be used to help make sense of the increasing quantity of data that is captured as well as to help support decisions made from the data.

My company will be there to incorporate these advances in our systems. This is because Baldwin Safety and Compliance has been a leader in safety management solutions for the last 20 years. Our team of safety experts, in-house developers, and 24/7 customer service that is passionate about serving has helped us to continually grow and serve the aviation industry.

Debi Carpenter: Looking ahead, we anticipate several key advances in SMS and compliance software. They include:
- AI and Machine Learning: The integration of AI and machine learning will enable predictive analytics, allowing MROs to anticipate potential safety issues before they occur and take preventive measures.
- Enhanced Data Visualization: More advanced data visualization tools will allow MROs to gain deeper insights into safety trends and make data-driven decisions with greater accuracy.
- Increased Interoperability: As the aviation industry becomes more interconnected, we expect to see increased interoperability between different systems and platforms, enabling seamless data exchange and collaboration.
- Real-Time Monitoring: Advances in IoT and sensor technologies will allow for real-time monitoring of aircraft and maintenance activities, providing instant feedback and enabling more responsive safety management. **AVM**