

Transform MRO operations with IBM Maximo for Aviation

Take your services organization to new heights with IBM



Highlights

- Leverage modern technology that delivers scalability, agility and reliability as a platform for growth
 - Optimize maintenance time by applying advanced analytics to schedules and resources
 - Manage pools of assets more efficiently
 - Apply predictive analytics to the science of asset configuration
 - Help drive out high cost of inventory management
 - Right-size parts inventories for actual need rather than historical purchase patterns
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Multiple aircraft, owners and operators; multiple part types across global locations; and multiple sets of government and industry regulations offer unique challenges to operators but also great opportunity for those who manage them proactively.

For years, maintenance, repair and operations (MRO) providers have invested heavily in custom software applications to manage the huge volumes of information the complex aviation industry creates. Often these systems are so proprietary they are difficult to improve—upgrades are long and cumbersome, and they cannot be scaled as new sites and aircraft are added. For new operators entering the MRO arena or for startups, the need is for a fast, out-of-the-box solution that can be quickly deployed to produce rapid results for customers and owners.

In fact, one recent study has indicated that by 2020, MRO providers' use of big data in the place of older approaches will not only become pervasive, but will fundamentally change their way of doing business.¹ IBM® Maximo® for Aviation MRO provides out-of-the-box analytics capabilities and enables business results to support both new and established operations.

To meet industry challenges, IBM continues its tradition of working with key design partners and leading aviation customers to provide a solution that addresses the complex requirements of MRO service providers.



Maximo for Aviation MRO provides an innovative approach to the way asset information is structured and shared across global enterprises, providing agility in the tools technicians and managers use to make decisions and enabling an environment that easily integrates to other key business systems.

Enterprise-enabled aviation technology is both a challenge and an opportunity

Regardless of how your MRO organization works—whether as a division of an airline, an independent third-party contractor, or the service arm of an aircraft manufacturer or supplier—you’re operating in a rapidly changing and growing marketplace.

As the industry grows, providers face pressures that range from increasing overhead and eroding margins to competition for specialized maintenance skill sets, outdated management systems, the need to monetize services without alienating customers, and requirements for better insight into equipment and operational performance. The need to support “power by the hour” operations and equipment uptime is especially important as it benefits multiple participants, from manufacturers who provide engines or other equipment to the airlines themselves. Legacy systems, however, are holding back the next wave of maintenance capabilities.

To relieve these pressures, the next step is to adopt more effective predictive maintenance solutions. In fact, some 52 percent of MRO companies have approved investments for developing such technologies—and estimates are that these solutions can reduce MRO spending by as much as 15 to 20 percent.¹

Introducing Maximo for Aviation MRO

As new technologies are developed, changes for the MRO industry are expected to be rapid and far-reaching—affecting core functions including line maintenance (with handheld devices for accessing information at the aircraft), maintenance planning (with improved component updates and interaction),

aircraft health management (with advanced analytics for prognostics and predictive maintenance), supply chain management (with technologies to help increase inventory utilization) and technical documentation (with enhanced generation, accessibility and storage of records).

Maximo for Aviation MRO is designed to address this evolution by enabling greater insight into the health of the many components of an airplane. To support prognostics and predictive maintenance, supply chain management and other core functions, it automates the exchange of information among equipment, physical locations and collaborative personnel, helping ensure uptime in highly regulated environments.

IBM innovation provides an information-exchange platform that supports aircraft safe operations and reliability, regulatory compliance, and operational efficiency. With visibility into data, Maximo for Aviation can, for example, prepare the MRO team with the information they need to quickly upgrade an airplane’s software to ensure up-to-date functionality, service landing gear that shows signs of wear to ensure reliability, or replace a broken coffee maker to improve passenger satisfaction.

To support uptime, the IBM solution also uses the power of analytics to manage pooled assets, from individual parts to complete subassemblies of major airplane components. With time for maintenance impacting aircraft utilization—and aircraft maintenance therefore scheduled on specific timeframes—asset availability and time in the maintenance bay must be managed carefully. Efficiency can be improved if critical maintenance for subassemblies can be carried out while an aircraft is in the bay. Similarly, outstanding service bulletins and airworthiness directives must be applied in the context of a mobile fleet—because critical operations depend on the accurate updates driven by these mandates. Attention to risk levels related to maintenance is a priority for every component.

Creating value for MRO service providers

Maximo for Aviation MRO is designed to coordinate these critical details—applying technology to the challenge of managing the vast landscape of aviation information. It can have a positive impact on the full range of MRO services, including:

- **Planning and scheduling:** Providing visibility into component locations and state of readiness to optimize work forecasting and management of crews and locations
- **Engineering:** Evaluating the impacts of service bulletins and airworthy directives and helping manage their implementation to minimize flight disruptions and cost
- **Version-based task management:** The ability to transform maintenance planning documents (MPDs) into operators maintenance programs (OMPs) integrates visibility into the engineering and approval aspects of work package preparation, creating closer alignment between line and base maintenance, and quality assurance
- **Configuration management:** Helping ensure that correct components are installed and properly configured using analytics-based validation of aircraft hardware and software
- **Resource management:** Integrating work stream information about pools of assets, skills and certifications, electronic log books, and supplier contracts
- **Materials management:** Optimizing the purchase and pooling of components to minimize inventory costs and help ensure availability
- **Maintenance management:** Using analytics to optimize aircraft maintenance schedules based on planned usage; improving management of labor, skills, qualifications and training

Getting ahead of maintenance

Of the MRO capabilities made possible by big data and analytics, predictive maintenance can yield some of the most significant results. Predictive maintenance goes well beyond other maintenance approaches—reactive, which takes action only after a machine or system fails; preventive, which provides maintenance based on a manufacturer's schedule; and condition-based, which monitors assets to determine their need for maintenance. Instead, predictive maintenance uses analytics to model foreseeable changes to the characteristics of individual systems or assets.

And predictive maintenance, as a tool to improve MRO operations, is coming fast. In fact, only 10 percent of companies in the aviation industry report that they have not considered its use—with 37 percent reporting that they are already developing applications.¹ Predictive maintenance and the use of analytics, however, still represent a major opportunity for MRO organizations seeking a competitive advantage. Across the aviation industry, only 3 percent of companies report that they have reached an agreement with an MRO provider to supply these services—and 60 percent report that they have had no discussions with MRO providers at all about this approach.¹

In combination with IBM business analytics tools, Maximo for Aviation MRO can be a critical tool for MRO specialists performing predictive maintenance. The solution delivers a mature, flexible platform that can respond to the unique needs of aircraft maintenance with IBM innovation as well as open systems standards that enable easy interconnections with an MRO provider's existing technology.

Why IBM?

The basis in open standards makes Maximo Aviation MRO an ideal platform for airlines, equipment manufacturers and MRO service providers who expect to differentiate themselves in a crowded marketplace with leading-edge technology. Maximo for Aviation MRO integrates people, processes and platforms to deliver a winning strategy for industry leaders who need powerful capabilities to meet exacting demands for an industry that runs on a “never fail” mandate.

For more information

To learn more about IBM Maximo Aviation MRO, please contact your IBM representative or IBM Business Partner, or visit: ibm.biz/maximoaviation

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Route 100
Somers, NY 10589

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¹ Chris Spafford et al., “Turning the tide: A wave of new aviation technology will soon hit the MRO industry,” *Oliver Wyman*, 2015. <http://www.oliverwyman.com/insights/publications/2015/apr/mro-survey-2015.html#.VXWk4GdASM8>



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