iMRO™

MRO EXCELLENCE FOR AIRLINES

Fulfill Service Goals with Proven Solutions from SAP and HCL AXON

Your maintenance, repair, and overhaul (MRO) organization is charged with improving staff and facilities productivity, ensuring regulatory safety and compliance, increasing fleet utilization, and maximizing profitability. With MRO solutions from SAP and HCL AXON you can reach these goals, be competitive, and grow your MRO business.

What if there were no maintenance-related service interruptions? This is unrealistic, we know. However, making service disruptions as a consequence of technical issues more predictable, and being prepared in a more proactive manner, goes a long way to reducing the negative effect of these interruptions.

Given the tremendous impact of improved service quality and higher aircraft utilization on profitability, much is at stake for airlines, aerospace manufacturers, and third-party maintenance, repair, and overhaul (MRO) operations. As a result, these organizations are seeking to improve profitability by aligning their serviceability and maintenance objectives across their business networks.

The MRO functionality in the SAP® ERP application, together with the iMRO add-on from HCL AXON can help you achieve that alignment, reach your serviceability goals, increase aircraft utilization, improve operational efficiency, and ramp up profitability.

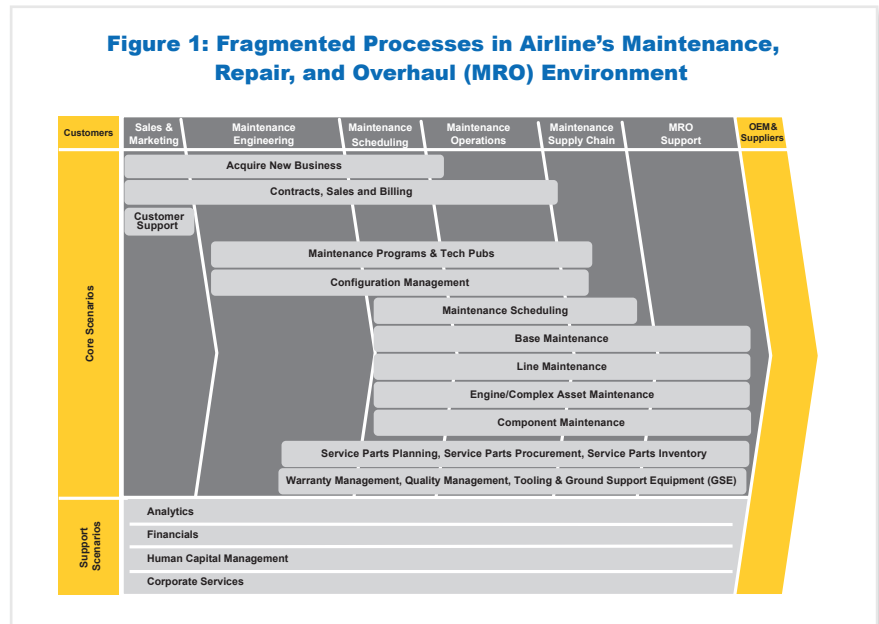**SAP** Global Partner

HCL

UNALIGNED PROCESSES BECOME INEFFICIENCIES

The MRO environment spans many broad business disciplines that easily lead to silos and fragmented processes. Collaboration with internal and external suppliers, vendors and clients is often individualized and labor intensive. The focus in maintenance becomes tactical and triage-like per event – especially AOGs (aircraft on ground) - rather than defined strategic approaches. These and other related issues manifest themselves in the following:

■ Reduced aircraft utilization

– Increased aircraft maintenance turnaround times

– Unforeseen events that impact process stability

– Missed opportunities to perform scheduled maintenance

– Ineffective response to unplanned defects

■ Cost containment problems

– Uncontrolled maintenance operations costs

– Poor resource and capacity utilization

– Low productivity

– Inefficient third-party collaboration

■ Suboptimal parts network

– High inventory costs

– Increased warehouse management, carrying, and transportation costs

– "Just-in-case" supply chain management

– Lower-than-desired service levels

■ Lack of decision support

– Difficulty in accessing data suitable for analysis and performance tracking

– Poor alignment of maintenance execution to the overall business strategy

– No visibility of true maintenance cost or margin

– Missing business intelligence related to fleet costing and performance

Figure 1: Fragmented Processes in Airline's Maintenance, Repair, and Overhaul (MRO) Environment

OPTIMIZE MRO OPERATIONS

The MRO functionality in SAP ERP, along with the iMRO add-on from HCL AXON, supports maintenance-related processes in a way that is fully integrated with your corporate functions. These supported processes include heavy maintenance, engine or complex asset maintenance, component repair, and spares procurement and provisioning. Newer generation aircraft, such as the Airbus 380 and Boeing 787 are fully supported.

The MRO functionality in SAP ERP and the iMRO add-on from HCL AXON can help you improve the way you run your business as follows:
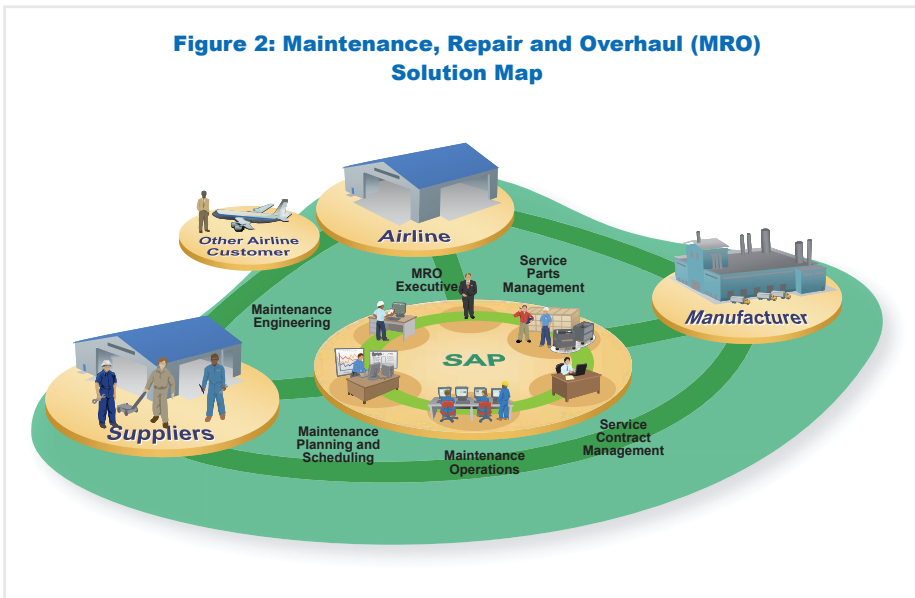
Maintenance Engineering

You can manage the set up and control for all aspects of records for aircraft, engines, landing gears and components electronically. This can be directly taken from common delivery documents (MPD, IPC, MRB, ARL etc.). The management processes include back-to-birth tracking; maintenance programs; configurations (as built, as delivered and as maintained); life-limits; modification status (AD, SB, SIL, AOL etc.) and maintenance history. Comprehensive and configurable workflow and reporting management enable support processes like cost benefit analyses for modifications, reliability control; documents tracking (full process cycle) and justifications for maintenance cycle escalations.

Maintenance Scheduling

You gain unparalleled control over your maintenance schedule. More maintenance events become predictable with a sophisticated maintenance-scheduling engine that considers life limits, service bulletins, campaigns, third-party commitments, seasonal usage, actual flight schedules, and non-routine (including deferrals) forecast. Planning tools help you balance maximum maintenance yield (the ability to perform planned maintenance as close to the limit as possible without going over), resource utilization, and part or tool availability. You can forecast material and tool requirements based on an accurate (deterministic) forecast demand as well as an analysis of historical consumption (probabilistic). This enables you to better plan for anticipated aircraft maintenance visits, allocate hangar and facility needs, assess work center capacity, and help ensure the availability and skill level of resources when and where they're needed.

Figure 2: Maintenance, Repair and Overhaul (MRO) Solution Map

OPTIMIZE MRO OPERATIONS

Maintenance Operations

Comprehensive and efficient tools are available for the full cycle of aircraft, engine, or component induction; strip; inspection; disposition; maintenance execution; sign-off; defect recording and deferral; and release back to service. Sales orders, notifications, and maintenance work orders are generated automatically based on the defined work package for the aircraft or component and are scheduled according to a pre-determined project plan. Your engineers and planners can perform routine work as described in the maintenance plan. In addition, you can track modification or service-bulletin alerts as well as opportunities to perform deferred defects or planned maintenance events. You can take advantage of powerful line-maintenance functions, including electronic work instructions, to support the execution of daily maintenance tasks for assets in operation. The solution allows for the launching of OEM or in-house authored manuals and searching for or placing orders for materials and tools as well as for digital signatures. This can be done through conventional or specialized mobile devices.

Supply Chain Management

You can accurately track your inventory, whether it resides in warehouses, shops, hangars, or line stations. You can forecast future requirements and stage components appropriately throughout your network by using a combination of actual and dependent demand from the maintenance schedule, historical trends, and sophisticated inventory-optimization algorithms.

Sales and Marketing

You can report in real time on maintenance costs by customer, contract, program, model, fleet, aircraft, line-replaceable unit (LRU), project code, location, or work order. You now have the information at hand to price and profitably win higher-margin, performance-based work and to keep your performance commitments to your airline operations and customers. You can also manage a complex environment of numerous types of proposals, contracts, and invoices for commercial, military, domestic, and international businesses.

Back-Office MRO

You can handle your MRO business unit as a profit center, increasing capital efficiency (as measured by asset utilization and cost) and improving transparency. You can be more confident that shortened financial closures are compliant with the most important legal requirements. You can also define the budget for the entire maintenance process in a manner that is consistent with cost planning and controlling procedures. Only SAP truly integrates maintenance engineering, planning, operations, sales, financial, and HR applications for end-to-end process support, as well as real-time analytics for improved decision support.

REALIZE THE BENEFITS
OF MAINTENANCE EXCELLENCE

The MRO functionality in SAP ERP and iMRO add-on from HCL AXON enable maintenance excellence by providing airlines and third-party MRO companies with a collaborative, industry-strength solution. Based on the SAP NetWeaver® technology platform, this solution fully integrates MRO operations with airline operations, including sales, engineering, planning, operations, supply chain, financials, and human resources.

By performing MRO with SAP ERP and iMRO, your organization can achieve the following business benefits:

- Higher aircraft utilization through increased reliability and serviceability with less down time

- Improved MRO operational efficiencies by increasing collaboration and supplier visibility, automating compliance and audit processes, standardizing process controls, and reducing turnaround times

- Reduced inventory costs by transforming a just-in-case supply chain into a fully optimized service parts network.

- Improved productivity of the technical staff

SUMMARY

To improve airline profitability, today's maintenance, repair, and overhaul organizations must manage costs and keep planes in the air. The MRO functionality in SAP ERP, together with the iMRO add-on from HCL AXON, can help your MRO organization reach its serviceability goals, improve service quality, and increase aircraft utilization.

BUSINESS CHALLENGES

- Reduced aircraft utilization

- Cost containment problems

- Suboptimal parts network

- Lack of decision support

SUPPORTED BUSINESS PROCESSES AND SOFTWARE FUNCTIONS

- **Maintenance engineering**
  Easily document all aircraft components and gain visibility of all maintenance demand

- **Maintenance scheduling**
  Gain total control over and optimize the maintenance schedule

- **Maintenance operations**
  Generate and schedule work orders according to plan

- **Supply chain management**
  Combine inventory management and supply chain management to get the right part to the right location at the right time at the lowest cost

- **Sales and marketing**
  Manage performance-based and other types of proposals and contracts in a complex business environment

- **Back-office**
  Handle the MRO business unit as a profit center, increasing capital efficiency and transparency

FOR MORE INFORMATION

Log on to **www.hcl-axon.com**

All other product and service names mentioned are the trademarks of their respective companies.

BUSINESS BENEFITS

- **Higher aircraft utilization**
  through increased serviceability and less down time.

- **Improved MRO operational efficiencies**
  by increasing collaboration and supplier visibility, automating compliance and audit processes, standardizing process controls, and reducing turnaround times.

- **Reduced inventory costs**
  by transforming a just-in-case supply chain into a fully optimized service parts network.

- **Increased staff productivity**

CONCLUSION

With the MRO functionality in SAP ERP and the iMRO add-on from HCL AXON, you can reach your serviceability goals, increase aircraft utilization, improve operational efficiency, and ramp up profitability.

The MRO functionality in SAP ERP and iMRO solution from HCL AXON enable the back-office integration of processes such as heavy maintenance, engine or complex asset maintenance, component repair, and spares provisioning.

You can handle your MRO business unit as a profit center, increasing capital efficiency and improving transparency.

iMRO™

SAP Global Partner ™

HCL AXON delivers significant business value to leading organizations through the innovative implementation of SAP technologies.

www.hcl-axon.com

HCL