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Prepare Your Digital Foundation for AI-Ready MRO Operations

As MRO organizations face mounting pressure to cut costs, improve asset availability and attract talent, digital transformation has moved from aspiration to necessity. Aviation Week spoke with Glenn Reis, who heads Federal, Aerospace & Defense Digital Services for Rockwell Automation and Retired Gen. Brent Baker, President, Orders from the General, LLC, and about how organizing data, adopting AI and modernizing workflows can unlock a new era of MRO efficiency.

Q Aviation Week: This year marks the first time Rockwell Automation has participated in MRO Americas. Why now?

A Glenn Reis: This is indeed our first time here and we are excited about the opportunity. MRO Americas is the premier conference supporting this vital and growing segment of the Aviation business. And Rockwell Automation – not to be confused with Rockwell Collins – is the world’s largest company dedicated to industrial automation and digital transformation.

Our well-known brands of Allen Bradley PLCs, components and integrated control systems enable highly productive machine operations. Rockwell’s FactoryTalk software helps the equipment OEMs, operators and production facilities drive optimal OEE across the equipment portfolio. And, our LifecycleIQ Services help solve your biggest transformation challenges with a full suite of professional and managed services supporting our clients.

Another reason we are excited to be involved in MRO Americas is to announce our strategic collaboration with Impresa MRO, a software partner that acts as a conductor of aviation maintenance, transforming operations into a seamless performance. From MRO inventory control and work orders to labor tracking, compliance, and analytics, Impresa’s digital MRO platform gives providers, OEMs, and airlines real-time visibility and control in one place.

Q AW: Why is “getting your digital house in order” important for modern MRO operations?

A General (RET) Brent Baker: For decades, MRO operations relied on manual processes –

spreadsheets, handwritten work cards and paper documentation. Today the industry generates enormous volumes of data, from work orders and spare-parts inventories to asset histories and sensor data. But much of that information remains fragmented across disconnected systems, which is why organizations must get their digital house in order.

Everyone says they want to tap into artificial intelligence. If your data is scattered, inconsistent or outdated, AI will not deliver meaningful results – and it may even produce flawed recommendations. When organizations work to consolidate MRO-centric data, it creates the opportunity for a seamless data flow across their processes, positioning them to leverage the power of AI for predictive maintenance, decision support and more effective maintenance planning.

Q AW: What are the biggest data challenges organizations face in MRO environments?

A BB: Believe it or not, often the biggest challenge is simply getting started. Many companies hesitate to begin a digital transformation while still managing day-to-day operations.

Beyond that, organizations often have decades of fragmented systems. Asset information can be siloed, work orders remain open or incomplete, and documentation exists in multiple formats – from PDFs to handwritten notes.

And then there’s the skills gap: experienced technicians who’ve worked manually for decades alongside a younger generation that expects everything to be digital. All those factors add complexity and reinforce why setting a strong foundation for your digital house is so critical.

Q AW: How will AI improve enterprise MRO processes?

A GR: We see several areas where AI can deliver meaningful impact. Predictive maintenance is the most obvious. AI’s pattern-recognition capabilities allow organizations to analyze complex systems and recommend the next best maintenance action, while validating that an engine or component performs to specification when it returns to service.

AI can also accelerate troubleshooting. Investigations that might take days of manual analysis can be completed much faster with AI-assisted analysis. Another important area is inventory optimization, where AI helps decode demand signals and align spare-parts inventories with expected MRO workloads.

It’s still early days. But once organizations see the business impact, adoption will accelerate quickly.

Q AW: What benefits do technicians see when organizations modernize MRO with AI?

A GR: AI can serve as an intelligent assistant for technicians. It can help guide troubleshooting, recommend the appropriate tool sets for a repair and provide reminders around compliance and certification requirements that must be addressed before an asset returns to service.

Another benefit is capturing institutional knowledge. Many experienced technicians carry decades of insight in their heads. AI and machine learning systems can help capture that tribal knowledge and make it available to younger

technicians, helping them ramp up faster and perform repairs with greater confidence.

Q AW: How should companies measure the success of their digital MRO transformation?

A BB: One of the biggest pain points in MRO is uncertainty – not knowing if an asset will be returned in a day, a week or six months. Digital transformation creates the conditions for the consistency and predictability the industry has long needed. You should also see improvements in repair turnaround times, reduced downtime, lower maintenance costs and improved first-time-fix rates.

We conducted an in-depth study at an Air Force depot and found technicians were spending only about 15% of their day working on the asset itself – the rest of the time they were searching for guidance, documentation, tools or parts. If digital processes could increase that to 30% or even 50%, the productivity gains would be transformative.

Q AW: What future trends will shape the digital MRO landscape?

A GR: One of the exciting applications of AI that Rockwell Automation is forging is the concept of Autonomy at the factory floor level for machine configurations and operations. Imagine equipment that understands the type of machining process it will be executing before the work order hits the floor. It can anticipate what maintenance will be needed, what machine tools are required and queue up the internal work orders ahead of time to ensure the equipment is ready.

About the Experts

Glenn Reis heads Federal, Aerospace & Defense Lifecycle Services at Rockwell Automation, applying 30 years of experience in Business Transformation expertise with advanced digital technologies.

General (RET) Brent Baker is President of Orders from the General, LLC, and a veteran leader in aerospace and defense digital transformation.

