Next-Gen Maintenance, Repair & Overhaul

2026 Industry Perspective

How Industry 4.0 technologies could transform MRO — making operations more connected, efficient, and resilient.

📖 WHAT IS NEXT-GEN MRO?

Understanding MRO — and Why It's Evolving

MRO covers all actions performed on equipment and assets throughout their lifecycle.

Maintenance

Routine work that keeps equipment in good condition and helps prevent failures.

Repair

Corrective action that restores functionality by fixing or replacing components.

Overhaul

A full rebuild process that returns an asset to operational condition.

Next-Gen MRO could use Industry 4.0 technologies to build a connected, safe, optimized, and flexible ecosystem — reducing variability and maximizing readiness.

⚠ THE CAPACITY BLIND SPOT

46,000 Aircraft by 2042. Who's Building the MRO Capacity to Support Them?

The global commercial fleet is set to grow from 28,000 to 46,000 aircraft by 2042 — a 64% increase. Yet MRO infrastructure, workforce, and technology readiness are not keeping pace.

28,000 → 46,000

Commercial aircraft in service globally, 2024 to 2042 (Source: Airbus GMF / Boeing CMO)

$130B+

Projected annual MRO market size by 2034, up from ~$80B today

650,000+

Additional aviation maintenance technicians needed globally by 2042

Where Growth Is Fastest

- Asia-Pacific: largest fleet expansion, underdeveloped MRO base
- Middle East & Africa: rapid traffic growth, limited local MRO capacity
- Latin America: growing fleets, heavy reliance on foreign MRO providers

Where Modernization Is Urgent

- North America & Europe: aging workforce, legacy infrastructure
- Established MRO hubs facing cost pressure and talent shortages
- Risk of losing competitiveness without digital transformation

⚠ **This is a real blind spot** — the industry is planning for more aircraft, but not enough is being done to build the MRO ecosystem that will keep them flying.

⚠ WHY NEXT-GEN MRO?

The Demands Are Real — and Growing

MRO organizations face mounting pressure from three converging forces — making transformation essential.

Doing More with Less

Budget constraints and workforce shortages are forcing MRO operations to deliver more with fewer resources.

Smarter, data-driven approaches are now essential.

Mission Readiness Under Pressure

Ageing facilities, cyber vulnerabilities, and centralized infrastructure constrain operational capacity.

Readiness depends on greater resilience and flexibility.

The Skills Gap Is Widening

Next-gen platforms require new maintenance knowledge, while an aging workforce is taking institutional expertise with it.

“Digital transformation is no longer a buzzword — it’s a business imperative.”

NEXT-GEN MRO VISION

From Current State Pain Points to Future State Outcomes

Current State Challenges

- **Aging equipment** — higher costs, longer TAT, unplanned failures
- **Talent gaps** — retiring expertise, hard to hire tech talent
- **Operational inefficiency** — constant juggling of labor, parts
- **Capacity management** — lack of predictability
- **Disjointed systems** — siloed data, manual work, cyber risk

Future State Vision

- **Advanced tech** — IoT systems, predictive maintenance, fewer failures
- **Enabled workforce** — shared knowledge, AI training, cross-trained teams
- **Optimized operations** — smarter allocation, better supply visibility
- **Integrated enterprise** — one truth, sensor data, secure architecture

Desired outcomes: Effective assets · Optimized costs · Efficient processes · Agility · Safety & security

Let's Talk Next-Gen MRO

If this resonated with you — let's connect. Whether you're planning, exploring, need to review your strategy or already on your transformation journey, I'd love to exchange ideas.

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