EON AI Ventures

The Sovereign Aerospace Intelligence Center

From the wrench to the orbit — a deployable competence engine for the nations building the future of aerospace

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Executive summary

The center of gravity of aviation has moved to the emerging world — to India, China, Southeast Asia, the Middle East, Africa and Latin America. That is where fleets are growing fastest, where new airports are being built by the hundred, and where national space programs are being stood up. It is also where the single hardest constraint on all of that ambition is most acute: the people who keep aircraft and satellites safe do not yet exist in the numbers required, and the competence to make them is being rented from abroad rather than owned at home.

This is not a training problem. It is a sovereignty problem. Nation after nation is discovering that it can buy aircraft, build hangars, and even contract a foreign knowledge-transfer program — and still not possess a self-renewing domestic capability. When the contract ends, the deep competence leaves with the vendor. Parliamentary committees are beginning to name this what it is: a national-security and economic vulnerability.

EON AI Ventures has built the answer, and it is deployable. The **Aerospace Intelligence Center (AIC)** is a single, repeatable facility-and-platform that any aviation-and-space nation can stand up to build sovereign aerospace competence across its entire value chain — general aviation, commercial MRO, satellite assembly-integration-test, and toward space operations — on one composable-intelligence spine. Every session run inside it compounds into a knowledge library the nation owns, that gets better with every job, and that no vendor can repossess.

Five things make it a category of one: it composes knowledge from understood components rather than memorizing specific aircraft, so one engine spans the whole arc; it compounds every session into a sovereign, owned asset; it understands the work well enough to reason about faults, not just replay scripts; it convinces a whole room and then trains cohorts at scale in one facility; and its field layer walks out onto the ramp and into the clean room to recognize real, undocumented equipment on sight.

Part 1 — The problem: a global competence crisis with three faces

1.1 Aviation's growth has outrun its workforce

The world will fly a record 5.2 billion passengers in 2025, and global airline revenue is set to surpass US$1 trillion. Global MRO spending is projected to climb from over US$119 billion in 2025 toward roughly US$156 billion by 2035. But the people who perform that maintenance are not being produced fast enough. Industry forecasts put the global need at more than 600,000 new aircraft maintenance technicians over the coming decades (Oliver Wyman), with the largest demand in Asia-Pacific — on the order of 253,000 specialists (Boeing) — followed by North America, Europe, the Middle East, Latin America and Africa.

The gap is demographic before it is anything else. More than two-thirds of the demand is replacement of a retiring generation, not growth; pre-pandemic the average technician's age was about 57. The traditional path to certification takes five to six years, while enrolment at maintenance schools grows at roughly 2% a year against a need to expand by about 20%. In the United States alone, the shortfall of certified mechanics is expected to reach 19% by 2028. You cannot close a demographic gap with a six-year, shrinking training model.

1.2 The emerging world carries the sharpest version of this

India is the clearest illustration, because it is the fastest-growing major market and the most candid about its exposure: it is the world's third-largest aviation market, with passenger traffic projected to grow about 8.9% a year through 2035; its fleet is set to triple toward 1,800+ aircraft by 2030; and its MRO market is projected to roughly double toward US$5.7–6.9 billion by 2030. Yet an estimated 80–90% of India's MRO work — engine overhauls and complex component repair — is sent abroad, a dependency a parliamentary panel has called a national-security and economic vulnerability. India has roughly 7,000–11,000 aircraft maintenance engineers today and, depending on the forecast, needs 34,000 to 72,900 by 2035, with IATA projecting a need for about 150,000 by 2036.

India's pattern — a booming fleet, an "MRO hub" ambition, a national self-reliance drive, a tens-of-thousands technician gap, and a foreign-outsourcing dependency framed as a security risk — repeats, with local variation, across China, Southeast Asia, the Gulf, Africa and Latin America. The names change; the shape does not.

1.3 The productivity of the people already on the floor is being wasted

Even where technicians exist, they are underused. McKinsey estimates that aircraft technicians' "wrench time" — the share of hours actually spent turning tools — runs between just 15% and 45%, and that AI and digital tools can unlock 15–35% more capacity from the existing workforce. The bottleneck is not only how fast you can train new people; it is how much competence you can put into the hands of the people already there, at the moment of the task.

1.4 The same nations are reaching for space — on borrowed competence

The countries scaling their aviation sectors are, in parallel, standing up national space programs — and hitting the same wall one level up. The common playbook is to contract a foreign partner to transfer knowledge to a small cohort of engineers for a single satellite mission. It works once. But it produces a handful of trained individuals, not a standing institution, and the deep capability tends to depart with the vendor. The stated national ambition — to lead the full satellite lifecycle domestically — outruns the human capacity built to deliver it.

So the crisis is really one crisis wearing three faces — general aviation, commercial MRO, and space — and each face is the same problem: competence transfer that doesn't stick.

Part 2 — The solution: one sovereign competence engine, deployable anywhere

The Aerospace Intelligence Center is a repeatable national facility built on EON's Work Intelligence platform. It does three things no conventional training center does: it teaches across the entire aerospace arc from one engine, it makes the resulting knowledge a national asset the country owns, and it takes that knowledge out of the classroom and onto the real hangar floor and clean-room bench.

2.1 Composition, not enumeration

Every competing approach enumerates: it builds a scripted trainer for one aircraft type, then another for the next, renting the content each time. EON composes. It models a finite library of understood components — the same pumps, actuators, valves, generators, line-replaceable units and, in space, reaction wheels and star trackers — each carrying a six-layer competence record: Identity, Geometry, Anatomy, Function, Behavior, Procedure. Because the system understands the components, it can compose any system, on any aircraft, on any tail — and, with a new content library authored the same way, on any satellite.

The aviation library already exists: 50 equipment classes across 12 system families, roughly 350 subcomponents, organized on ATA iSpec 2200 — aviation's own maintenance taxonomy — so that when the system recognizes a component, its output maps straight into the maintenance-manual task, the part number, and the operator's records. It speaks the industry's data language on day one.

2.2 The platform stack

Genesis shows the steps: it runs known procedures four ways, with assessment. EON Universal understands the work: it builds the smart twin from photographs or a schematic, composes facilities from the component library, and runs conditional procedures that branch on live conditions — the "stored-pressure still present?" safety gate on a charged strut that exists only because the system knows the strut stores energy. EON Live adds real-time physics. Situation Room carries the tacit "what to do when it goes wrong." Field IQ, the crown jewel, recognizes real equipment on sight, overlays the intelligence onto the actual geometry with no field modeling, and both guides the worker and captures what really happened. Assess IQ and Compound IQ score the "delta" between the guidance given and what the field actually did, and compound it back into the twins. Together these form a

flywheel: every session, every real job, makes the shared national library smarter for the next worker.

2.3 The physical center

The facility adapts EON's proven Experience Center into three spaces plus an AI layer: the Showroom, a U-shaped fine-pitch LED immersive room where one facilitator runs a five-rung demonstration for a seated audience with no headsets; the Multi-User Floor, a high-throughput training floor where a whole cohort works in parallel under one instructor; the Panic Rooms, isolated cubicles for timed, scored, high-stress drills; and the AIT Bay, a clean-room-styled satellite assembly-integration-test training space. A portable projection tier travels to regional sites, partner MROs, universities and air-force bases; the fixed LED flagship anchors at the national hub. Capture is decoupled from display throughout, so no single device failure can sink a session.

2.4 The delivery continuum — three on-ramps, one engine

General aviation is the widest funnel, the fastest cycle, and the highest safety leverage in under-served regional operations. Commercial MRO covers line and base maintenance across airframe, powerplant and systems, mapped to ATA chapters and aligned to A&P / EASA-equivalent competency frameworks. Satellite AIT and ground segment covers assembly, integration, test, contamination control and ground-station operations, aimed directly at the sovereign-space ambition. Space operations — launch integration and on-orbit training — are an aspirational later phase, kept in the vision and out of near-term commitments so the whole proposition stays credible.

Part 3 — What makes it unique: the five reasons

1. **One spine from the wrench to the orbit.** Composition-not-enumeration lets a single engine cover general aviation, commercial MRO and satellite AIT. Every competitor is locked to type-specific scripted trainers and cannot span that arc.
2. **A sovereign asset the nation owns, not rents.** Every drill deposits into a national aerospace knowledge library the country owns and that compounds with every job — the direct cure for the foreign-dependency and knowledge-transfer trap. "Switch the model, keep the value" becomes national policy.
3. **It understands the work; it doesn't just replay it.** EON Universal reasons about faults and runs conditional procedures with safety gates. A scripted VR trainer has no concept of stored energy and cannot branch on it. This is airworthiness-grade judgment, not muscle memory.

4. **Convince the room, then scale the cohort — in one facility.** The Showroom converts a decision-making room in one sitting; the Multi-User Floor and Panic Rooms then push cohorts through at volume under one instructor. Structurally impossible with a headset-per-person model.
5. **The field layer walks onto the ramp and into the clean room.** Field IQ recognizes a dead, undocumented unit on sight, builds its own model, diagnoses the fault and guides the safe procedure — closing the loop from classroom to flightline to orbit, and feeding the flywheel every time.

Part 4 — Why it wins against the incumbents

The market is real and contested. AR/VR in aviation is projected to grow from about US$2 billion in 2025 toward US$12 billion by 2033 (~25% CAGR), with the training segment alone exceeding US$1.5 billion by 2028. The incumbents are serious: CAE (Project CAVOK), Lufthansa Technical Training / Technik, Airbus (a VR Maintenance Trainer for the A350 and A320neo, reporting ~25% faster training and ~40% better accuracy), Boeing, and Thales (an AI-adaptive maintenance VR suite).

But every one of these is a type-specific, scripted trainer — a headset that replays a fixed procedure on one aircraft. They enumerate: model the A320, then the A350, then the next tail. None compose from a component ontology, none recognize undocumented real equipment on sight, none reason about faults with conditional branching, and not one spans general aviation to satellite. Lufthansa Technik itself concedes that AR still carries too many technical restrictions for wide production use. We do not beat CAE on brand or flight-sim fidelity; we beat the entire field on kind.

Independent evidence that the category delivers is already on the record: studies report on the order of a 50% reduction in training time, ~30% better first-time-fix rates, and ~40% faster inspections (Frost & Sullivan), and EASA has already approved specific VR-based modules. Against a foreign incumbent, the decisive argument is not featured. It is that a scripted-trainer vendor sells dependency — the content lives with them, the updates come from them, and it covers only the aircraft they modeled. The AIC sells the inverse: a method the nation operates, a library the nation owns, covering the assets the nation chooses.

Part 5 — Deployment model

The AIC is designed as a repeatable, phased national deployment, each phase independently demonstrable and de-risking the next. Phase 0 — Proof & anchor: stand up the Showroom demonstration on the existing commercial-MRO library; convince the anchor stakeholders; secure the site. Phase 1 — GA + MRO center live: build the flagship

spaces; extend the library to general aviation; run the first cohorts; establish certification alignment. Phase 2 — The sovereign space mission: author the satellite AIT and ground-segment library; build the AIT bay; launch the satellite track with the national space institution and universities. Phase 3 — Reach & aspiration: deploy the portable tier regionally; extend toward space-operations content; position the center as a regional competence hub and an export template.

The funding model is public-private by design: national aviation and space institutions as anchor demand and credibility, airport-development programs for co-location, the national training system and science ministry for workforce funds, industry as demand and co-funders, and multilateral development finance for workforce and innovation. The economics extend EON's proven Experience Center unit model; a fully costed model is prepared per deployment. The human engine is EON's Work Intelligence Fellowship — a selective, mission-driven recruiting and talent-development flywheel that staffs the center and feeds the national pipeline.

Conclusion

Every nation now building its aviation and space future faces the same wall: it can buy the hardware, but it cannot yet make — and keep — the people. The prevailing answer, renting competence from abroad, produces a handful of trained individuals and a standing dependency. The Aerospace Intelligence Center replaces that with a self-renewing national capability: one composable engine spanning the wrench to the orbit, a knowledge library the nation owns and compounds, and a facility that convinces the room, trains the cohort, and walks out onto the ramp.

Aviation's future is being built in the emerging world. The nations that own their aerospace competence — rather than rent it — will be the ones that keep the value they create.

Understand the work. Compose any facility. Keep the value.

EON AI Ventures. External figures are drawn from published industry and government sources (Airbus, Boeing, Oliver Wyman, McKinsey, IATA, Frost & Sullivan, and national aviation and industry reporting, 2024–2026) and are available on request. Platform capabilities are EON products. v1.0 · Confidential.