

# Assess IQ 2.0: Whole-Facility AI Observation for Industrial Training at Scale

The observer that never blinks. 500 trainees at once.  
Audit-ready by the end of the shift



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# Executive Summary

Hands-on training in oil, gas, chemical, and energy facilities has, for decades, been graded the same way: one human instructor, one trainee, one paper checklist. That model worked on a small scale. It does not work for the 500-trainee, 50-skid, multi-cohort training centers that today's energy operators are running, and it cannot produce the cryptographic, regulator-ready evidence that today's audits demand.

Assess IQ 2.0, from EON AI Ventures, is the first AI training assessment platform built to observe an entire industrial facility rather than one trainee at a time. It watches every trainee on every skid, across every shift, and scores their work in real time. Instructors no longer have to be everywhere at once. AI is everywhere at once.

*Assess IQ 2.0 verifies real-world skills at facility scale — comparing every trainee against a Gold Standard expert reference, intervening live when safety is at risk, and producing cryptographically signed, audit-grade evidence before the shift ends.*

## What is new in 2.0

- **Whole-facility observation.** Two cameras per skid — one ceiling-mounted, one shoulder-worn — fuse into a single 3D view of every procedure. The system observes every skid simultaneously, with no instructor in the loop required for capture.
- **Five-pass AI consensus.** Every step is evaluated through five independent inference passes, with consensus required before the score is sealed. Edge cases are escalated to a supervisor rather than guessed.
- **AI as primary safety actor.** When a trainee reaches for a hot pipe or skips a safety gate, Assess IQ 2.0 intervenes in the moment — through an earpiece, on an AR overlay, on the skid tablet. The human supervisor becomes the override layer, not the bottleneck.
- **Cryptographic evidence.** Every evidence pack is signed with Ed25519 keys held by the customer, hashed across the full chain of custody from edge to cloud to vault, and timestamped by a third-party RFC 3161 authority. Auditors verify the math themselves, in seconds.
- **Guided 36-step, 5-journey UX.** From camera installation to audit export, every user is walked through one screen at a time. No menus. No dashboards to assemble. The product knows what comes next.
- **Unified product family.** Assess IQ 2.0 now completes the EON stack alongside Genesis (procedure authoring) and Field IQ (in-field delivery on Ray-Ban Display glasses), under one unified data model.

This document explains how Assess IQ 2.0 works, why whole-facility AI observation is now possible (and required), and how energy operators, refineries, and industrial training centers can deploy it to scale competence verification without scaling instructor headcount.

# 1. The Industrial Training Problem at 500-Trainee Scale

## 1.1 Training Completion Is Not Competency

Most operators still measure training as a set of inputs: did the worker attend, did they complete the module, did they pass the quiz, did a supervisor sign off. These signals are routinely mistaken for proof that the worker can perform the task correctly under real conditions. They do not capture whether a worker can execute the procedure safely, in sequence, with sufficient precision, and without deviation.

## 1.2 The New Scale Problem

The constraint has shifted. Operators are no longer training ten workers per quarter at a single skid. They are running training centers with dozens of skids and hundreds of trainees moving across them simultaneously, across multiple shifts, with cohorts arriving and leaving on rolling schedules. A single human instructor cannot observe a 500-trainee, 50-skid floor. Three instructors cannot. Thirty cannot — not with the consistency, recall, and evidence trail that today's audits require.

The traditional response — hire more instructors, slow the throughput, or trust the checklist — produces one of three outcomes: cost explosion, training bottleneck, or undocumented risk.

## 1.3 The Cost of Unverified Skills

Operators bear measurable consequences when skills are assumed rather than validated:

- **Safety incidents:** violations, injuries, regulatory exposure.
- **Quality failures:** defects, inconsistent outputs, warranty claims.
- **Operational downtime:** mistakes leading to equipment damage or stoppage.
- **Rework and waste:** repeated tasks, lost materials, delayed delivery.
- **Liability:** weak evidence during investigations, audits, or legal proceedings.
- **Talent inefficiency:** skilled workers used to supervise basic verification rather than higher-value work.

## 1.4 Why Generic AI and Generic Platforms Fail Here

General-purpose AI and generic learning platforms typically optimize for “good enough.” They frequently deliver 80% quality outputs — adequate for low-stakes tasks but not acceptable where precision is mandatory. In high-stakes industrial operations, “almost correct” is often indistinguishable from unsafe or non-compliant. Operators require systems designed for verification, governance, and evidence — not just convenience — and they require those systems to operate continuously across an entire training floor.

## 2. Introducing Assess IQ 2.0

### 2.1 What Assess IQ 2.0 Is

Assess IQ 2.0 is a whole-facility AI observation platform for industrial training. It observes every trainee on every skid, across every shift, scores their work against a Gold Standard expert reference in real time, intervenes in the moment when safety is at risk, and produces cryptographically signed, regulator-ready evidence packs before the trainee walks to the next station.

*Assess IQ 2.0 is not another training platform. It is the observation, intervention, and evidence layer for the training floor — the one observer that never blinks.*

### 2.2 What Assess IQ 2.0 Measures

Assess IQ 2.0 is designed to measure hands-on procedural performance, including:

- Correctness of steps.
- Sequence integrity.
- Safety compliance, including PPE, isolation, and gate adherence.
- Precision and quality against tolerances.
- Timing and efficiency, where relevant.
- Deviations and error patterns, both per trainee and across cohorts.

### 2.3 What Assess IQ 2.0 Produces

Every shift produces, automatically:

- A complete per-trainee scorecard, step by step.
- A signed evidence pack per procedure, with chain-of-custody hashes.
- A cohort-level analytics view for the training center director.

- An audit trail already in the vault — no spreadsheets, no paper, no 8 p.m. Friday grading session.

## 2.4 What Assess IQ 2.0 Is Not

Assess IQ 2.0 is not a learning management system, not a content authoring tool, not a generic chatbot, and not a real-time AR assistant for production workers. Procedure authoring is handled by Genesis. In-field worker guidance is handled by Field IQ. Assess IQ 2.0 is the verification, intervention, and evidence layer — the part of the stack that certifies whether a trainee is actually ready to work.

## 3. About EON AI Ventures

EON AI Ventures builds AI products for the industries that build the physical world. The company turns expert knowledge into immersive training, and immersive training into measurable competence. Headquartered in Irvine, CA, EON serves energy, manufacturing, and infrastructure customers globally.

EON AI Ventures was founded by the leadership behind EON Reality, drawing on 25 years of experience in immersive learning and XR. The company was established to accelerate delivery of AI-powered workforce solutions across industries and institutions, with a specific focus on environments where precision matters — where generic AI delivers 80% quality, but high-stakes operations require 100%.

The EON product family is purpose-built for the industrial floor:

- **Genesis** authors standard operating procedures and records the gold-standard reference runs.
- **Field IQ** delivers those procedures to workers on Ray-Ban Display glasses — voice, image, animation, exactly when the worker needs them.
- **Assess IQ 2.0** observes the entire training floor and certifies competence.

One company. One unified data model. One audit trail from authoring to assessment to evidence.

## 4. The Whole-Facility Observation Architecture

The core of Assess IQ 2.0 is the ability to observe an entire training floor with the consistency and recall of a single, tireless expert — and to do so per skid, per trainee, per step, simultaneously.

## 4.1 Two Cameras per Skid, One 3D View

Each skid is instrumented with two cameras: one ceiling-mounted, providing a stable overhead view of the whole work area, and one shoulder-worn, providing the trainee's point of view of hands, tools, and instrumentation. The two streams fuse into a single 3D view of every procedure, eliminating the occlusions that single-camera systems suffer from and giving the AI an unambiguous view of what the trainee actually did.

## 4.2 Five-Pass AI Consensus

Every step of every procedure is evaluated through five independent inference passes. The system only commits a score when consensus is reached. When the passes disagree — typically on edge cases involving ambiguous gestures, partial occlusion, or non-standard tooling — the step is automatically flagged for supervisor review rather than scored by a single model's guess. This is the mechanism by which Assess IQ 2.0 holds itself to a verification standard rather than an “80% good enough” standard.

## 4.3 Real-Time Scoring

Scoring happens at the edge, in real time. By the end of the shift, every trainee has a complete scorecard, every procedure has a signed evidence pack, and every regulator-ready audit trail is already in the vault. There is no overnight processing batch. There is no spreadsheet to assemble. The shift ends with the work done.

*Every frame is hashed, signed, and sealed before the trainee walks to the next station. The evidence is finished while the work is still warm.*

# 5. AI as the Primary Safety Actor

Assess IQ 2.0 reflects a deliberate inversion of the traditional safety model. In legacy training, the human instructor is the first line of defense and the AI, when present at all, is a passive observer. At 500-trainee scale, that model is structurally unsafe: the human cannot be in five places at once, and reaction time is gated by attention bandwidth.

## 5.1 Real-Time Intervention

When a trainee reaches for a hot pipe, skips a lockout step, or violates a safety gate, Assess IQ 2.0 intervenes in the moment — simultaneously, through an earpiece, on an AR overlay, and on the skid tablet. The intervention reaches the trainee in under a second, before the unsafe action completes.

## 5.2 The Human as the Override Layer

The supervisor sees what the AI did one second later and approves, overrides, or escalates. The AI is the first responder. The human is the override layer — never the bottleneck.

*This is the inversion that makes large-scale industrial training safe to do at speed. The AI carries the reaction-time burden. The human carries the judgment burden.*

## 5.3 Why the Inversion Matters

This separation of responsibilities is what enables a single training director to safely oversee 50 skids in parallel. The supervisor is no longer trying to watch every action; the supervisor is reviewing a queue of AI-initiated interventions, each one already documented, hashed, and timestamped. The supervisor's attention is reserved for the cases that actually require human judgment — disputes, edge cases, and escalations — and every override decision is itself logged into the evidence trail.

# 6. The Gold Standard Method

## 6.1 What a Gold Standard Is

A Gold Standard is an expert-performed execution of a task that defines the correct steps, the correct sequence, the safety rules and markers, and the quality expectations and tolerances. It is the reference model against which every trainee performance is measured.

## 6.2 Why Gold Standards Outperform Rubric-Only Assessment

Traditional assessment relies on rubrics and checklists. These can be useful but suffer from interpretation variability, weak evidence trails, difficulty capturing precision, and inconsistency across assessors and sites. Gold Standards create an objective baseline, measurable step-level comparisons, and repeatable, scalable verification.

## 6.3 Authored in Genesis, Verified in Assess IQ 2.0

Gold Standards are authored in Genesis, EON's procedure authoring product. Genesis records the expert reference run, captures the safety rules, and version-controls the procedure as the SOP evolves. Assess IQ 2.0 consumes that Gold Standard as a controlled reference asset — version-locked, signed, and traceable to the official SOP documentation. When the SOP changes, the Gold Standard changes, and every subsequent evidence pack references the updated version.

## 6.4 Enterprise Governance

Gold Standards are managed like any enterprise operational standard: created by subject-matter experts and process owners, reviewed and approved by safety and compliance leads, version-controlled as SOPs evolve, and traceable to official standards documentation. Assess IQ 2.0 treats them as controlled assets, not informal content.

## 7. The 36-Step, 5-Journey Workflow

From the moment IT installs the cameras to the moment compliance exports an audit response weeks later, Assess IQ 2.0 walks every user through one screen at a time. There are no menus to navigate, no dashboards to assemble. The product knows what comes next. Each journey is a guided wizard. Each step is a single screen. Each step's outcome is logged, hashed, and timestamped before the next one opens.

Journey	Purpose
<b>System Activation</b>	IT installs cameras, registers skids, provisions the customer's Ed25519 keys, and validates edge-to-vault chain of custody. One screen at a time, signed at every step.
<b>Training Session Setup</b>	The training director picks the procedure, the cohort, the skid assignments, and the shift window. The Gold Standard version is locked into the session before any trainee touches a skid.
<b>Trainee Use</b>	Trainees work the procedure on the skid. Assess IQ 2.0 observes, scores, and intervenes in real time. The trainee sees prompts on the skid tablet and via the earpiece; the AR overlay shows the next correct step.
<b>Live Monitoring</b>	The supervisor watches the queue of AI-initiated interventions across the floor, approves or overrides each one, and sees per-skid status in a single view. No menu navigation.
<b>Audit Review</b>	Compliance opens the audit wizard, selects the date range and procedure, and exports a signed evidence response package. Auditors verify the math on their own machine.

Across the five journeys, Assess IQ 2.0 exposes 36 wizard steps in total. Every step has a single, well-defined outcome. Every outcome is logged. The product is opinionated by design: it is faster to do the right thing than to do the wrong thing.

## 8. Audit-Grade Evidence and Cryptographic Defensibility

### 8.1 Evidence Is the Currency of Compliance

In regulated and safety-sensitive environments, proof matters. Auditors, customers, regulators, and legal processes increasingly require structured evidence, traceability to standards, repeatability and consistency, and demonstrable governance. Assess IQ 2.0 was designed evidence-first — every artifact the system produces is built to survive legal scrutiny.

### 8.2 Ed25519 Signatures, Customer-Held Keys

Every evidence pack is signed with Ed25519 keys held by the customer — not by EON. The customer controls the root of trust. The signature is verifiable using only the customer's public key and a standard cryptographic library. There is no dependency on EON infrastructure to validate the evidence.

### 8.3 Chain-of-Custody Hashing

Every frame, every score, every supervisor override is hashed across the full chain of custody from edge device to cloud to long-term vault. Tampering at any point in the chain breaks the hash, and the break is detectable in seconds. The evidence pack carries the full hash tree; auditors can re-derive it themselves.

### 8.4 RFC 3161 Third-Party Timestamps

Each evidence pack is timestamped by a third-party RFC 3161 timestamping authority. The timestamp is independent of both EON and the customer, anchoring the time of evidence creation to an external, legally recognized authority. This eliminates “back-dating” as a possible attack on the evidence.

### 8.5 Auditors Verify Themselves

*The math is in the file. The math goes to court. Auditors do not take EON's word for it — they verify it themselves, in seconds, on their own machine.*

### 8.6 Risk and Liability Reduction

With objective evidence and controlled governance, operators reduce exposure related to safety incidents, certification disputes, customer audits, and regulatory enforcement actions. The cost of producing the evidence is now zero on the margin — the system generates it whether or not anyone asks. When the auditor eventually does ask, the response is already in the vault.

## 9. The EON Product Family

Assess IQ 2.0 completes the EON training stack. It is one of three products that share a unified data model and a single audit trail from authoring to assessment to evidence.

Product	Role	What it does
Genesis	Authoring	Captures expert knowledge, authors the standard operating procedure, records the gold-standard reference run, and version-controls the SOP.
Field IQ	In-field delivery	Delivers the authored procedure to workers on Ray-Ban Display glasses — voice, image, animation — at the moment of need, in the field.
Assess IQ 2.0	Assessment & evidence	Observes the training floor at facility scale, intervenes in real time on safety, scores trainees against the Gold Standard, and produces signed audit evidence.

Because all three products share a unified data model, a procedure authored in Genesis, delivered in the field via Field IQ, and assessed in the training center via Assess IQ 2.0 is the same procedure end-to-end — versioned, signed, and traceable. The audit trail is continuous. There are no integration gaps to reconcile, no data normalization steps, no separate systems of record to keep in sync.

## 10. Deployment Models

### 10.1 Industrial Training Centers

Assess IQ 2.0 is built for training centers running cohorts of 100 trainees or more. EON works with the customer to instrument each skid with the ceiling-mounted and shoulder-worn camera pair, provision the customer's Ed25519 keys, and configure the edge-to-vault chain of custody. A typical center comes online skid by skid; the platform begins producing signed evidence on the first skid before the last skid is instrumented.

### 10.2 Energy Operators and Refineries

For energy operators and refineries, Assess IQ 2.0 supports standardization across multiple training sites, shared SOPs and Gold Standards, and contractor onboarding programs. The cryptographic evidence model is designed for the regulatory environment these operators actually face — not a generic compliance abstraction.

### 10.3 Pilot Approach

A typical pilot selects three to five high-impact procedures, instruments one to two skids, captures the Gold Standards in Genesis, runs a cohort of trainees through Assess IQ 2.0, and measures incident reduction, rework reduction, and onboarding acceleration against the operator's baseline. Audit-ready evidence packs are produced from day one, not from the end of the pilot.

### 10.4 Multi-Site Rollout

Once a pilot is validated, rollout proceeds skid by skid and site by site. Gold Standards version-controlled at headquarters propagate automatically to every site. Site-level performance can be compared on a single dashboard. Contractor cohorts can be assessed against the same Gold Standards as full-time employees, with the same evidence trail.

## 11. Industry Use Cases

Assess IQ 2.0 is purpose-built for high-stakes industrial procedures, including:

- **Oil and gas:** rig procedures, well control, isolation and lockout, emergency response drills.
- **Refining and petrochemical:** unit start-up and shutdown, sampling, valve lineups, hot work procedures.
- **Chemical processing:** reactor charging, isolation, vessel entry, hazardous material handling.

- **Power generation:** turbine maintenance, switching procedures, isolation and tag-out.
- **Industrial maintenance and reliability:** lockout/tagout, inspections, component replacement, preventive maintenance.
- **Field service:** service procedures, safety protocols, repair tasks, customer compliance verification.

The common pattern across these use cases is the same: hands-on procedures where deviation has safety consequences, where regulators require documented competence, and where the training cohort is large enough that human-only observation has become structurally inadequate.

## 12. ROI and Business Impact

Assess IQ 2.0 drives measurable value through several reinforcing mechanisms:

- **Reduced incidents.** Real-time AI intervention prevents unsafe actions before they complete; cohort-level analytics expose systemic gaps.
- **Reduced rework.** Step-level scoring detects errors at the source, not after the workpiece leaves the skid.
- **Faster onboarding.** Trainees reach validated competency faster because feedback is immediate, specific, and signed off the same shift.
- **Lower supervision overhead.** One training director can safely oversee 50 skids in parallel; instructors return to higher-value work.
- **Standardization across sites.** Identical Gold Standards, identical scoring, identical evidence — across every facility.
- **Lower audit response cost.** The audit response is already in the vault; export is a wizard, not a project.

Most operators quantify ROI through incident cost reduction, rework reduction, time-to-competency reduction, improved first-time quality rates, and the elimination of the manual audit response process.

## 13. Governance and Responsible Use

### 13.1 Human-in-the-Loop Oversight

AI provides measurement and real-time safety intervention. Humans retain accountability for certification decisions, override authority, and disputes. Every override decision is itself logged into the signed evidence trail.

### **13.2 Worker Transparency**

Trainees see their own scores, the reasons for each score, and the specific deviation that triggered each safety intervention. Scoring is explainable by design — the system can show the trainee, the supervisor, or an auditor exactly why a step was scored the way it was.

### **13.3 Fairness and Bias Mitigation**

Because every trainee is scored against the same Gold Standard, with five-pass AI consensus and identical thresholds, the most common source of bias in industrial training — assessor variability — is structurally eliminated. Edge cases route to human supervisors with explicit, logged justification.

### **13.4 Consent, Data Ownership, and Retention**

Customers control the Ed25519 keys, the data retention policy, and the access controls. Assess IQ 2.0 provides enterprise-ready frameworks for trainee consent, data ownership, and retention windows aligned to the customer's regulatory environment.

## **14. Security, Privacy, and Enterprise Readiness**

Assess IQ 2.0 aligns to the security and operational expectations of large industrial operators:

- Role-based permissions across IT, training director, supervisor, auditor, and trainee.
- Encryption in transit and at rest, with customer-controlled keys for evidence signing.
- Controlled evidence retention with policy-driven expiration.
- Comprehensive audit logging of every action in the system, including overrides and exports.
- Secure data access controls aligned to customer identity infrastructure.
- Edge-first architecture, so the training floor remains operational under intermittent connectivity.

## **15. Roadmap**

Assess IQ 2.0 development priorities include:

- Continued accuracy improvements in the five-pass consensus model, especially for high-occlusion procedures.

- Expanded library of industry-specific Gold Standard templates, co-developed with operator partners.
- Deeper benchmarking across sites, regions, and cohorts for workforce intelligence.
- Additional intervention modalities beyond the current earpiece, AR overlay, and skid tablet triad.
- Tighter integration with Genesis and Field IQ as the unified EON data model evolves.

## Conclusion

Operators cannot transform industrial training at scale while relying on assumed skills, manual observation, and paper checklists. Workforce performance, safety, and compliance require systems that produce proof of competency — at the scale the modern training floor actually operates.

Assess IQ 2.0 provides a new standard: whole-facility AI observation, real-time safety intervention, and cryptographically signed evidence — enabling operators to reduce risk, improve quality, accelerate workforce readiness, standardize execution across sites, and defend compliance with proof that auditors verify themselves.

*One observer that never blinks. 500 trainees at once. Audit-ready by the end of the shift.*

## Call to Action

EON AI Ventures is accepting pilot inquiries from energy operators, refineries, and training centers running cohorts of 100 trainees or more. A typical pilot validates three to five high-impact procedures on one to two skids, with signed evidence packs produced from day one.

## Contact

To engage on a pilot or request the full product overview and UX specification, contact EON AI Ventures at [eonaiventures.com](https://eonaiventures.com).