EON AI Ventures

ILLUMINATED INTELLIGENCE

Activating stranded digital capital into a process-safety, performance and data asset across hazardous industries - and the substrate for the next decade of hazardous-area autonomy.

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Executive Summary

Industrial operators in hazardous-area industries - oil and gas, chemicals, mining, power, pharmaceuticals and defence - have invested heavily over the past decade in **reality capture**: laser scans, photogrammetry, and 3D point clouds of their producing assets. Today, most of that data sits as inert geometry. Around it, the industry faces compounding pressures the workforce cannot absorb on its own: an aging operator population on the brink of mass retirement [1], offshore oil and gas unplanned downtime costing the average platform $38 million per year and the worst performers up to $88 million [2], and human error implicated in a large share of major process-safety events whose individual cost has, in living memory, reached more than $65 billion for a single incident [3].

This white paper introduces, and substantiates with public evidence, **Illuminated Intelligence** - an end-to-end pipeline from EON AI Ventures Inc. that decomposes existing scans into addressable digital twins, makes those twins operable through EON's Genesis 3 simulation, and surfaces them in the field as voice-controlled, hands-free guidance on certified industrial smart glasses. The same decomposed twin is used twice - to train the workforce safely, and to guide and verify the workforce on the live asset.

Modelled conservatively against public benchmarks, using an illustrative 12,000-user deployment with approximately 250 priority assets, the platform requires approximately **$20 million** in one-time investment and **$15.6 million per year** to run, and is expected to deliver annual savings of **$18.8 million** in a deliberate floor case and **$34 million** in a realistic case driven primarily by downtime avoidance. Payback in the realistic case is approximately **1.1 years**, with cumulative five-year net value of approximately **$72 million**. The floor-case savings are thin against a flat licence; the paper sets out three commercial structures - flat, tiered, and outcome-based - so the commercial model is matched to the evidence the pilot produces, not assumed in advance.

The strategic case is larger than the operating case. Every guided task creates **structured, twin-anchored, outcome-tagged data** that does not currently exist anywhere in the industry. The same playbook that gave Amazon, Tesla and Waymo their autonomy advantage - deploy humans-with-sensors at scale; capture the long tail; train the next system on it - applies, uniquely, to hazardous industrial work. Robotic precedent for that work is no longer theoretical: BP, Aker BP and Woodside are already deploying quadruped robots on producing oil and gas facilities [4]. The captured corpus is, in effect, a free call option on certified hazardous-area autonomy - banked at near-zero marginal cost as a byproduct of the safety programme.

Bottom line. Activate capex you have already spent. Improve measured safety and downtime on a defined first-deployment pilot. Build a defensible institutional-knowledge asset that compounds. And bank - at no incremental cost - the structured data the next decade of hazardous-area autonomy will need.

The paper recommends a single-segment pilot organised around a named upcoming high-consequence moment - a turnaround, planned shutdown, scheduled maintenance window, validation campaign or commissioning - with success measured against the

operator's own baseline and the commercial structure locked on real evidence rather than projection.

1. The Industry Context: Four Compounding Pressures

The case for Illuminated Intelligence does not rest on a single number. It rests on four pressures that, individually, would justify investment and that, together, define the operating environment over the next decade. The pressures appear across every hazardous-area industry - oil and gas, chemicals, mining, power generation and utilities, pharmaceuticals and defence - though the deepest public evidence base is in oil and gas, which this paper cites accordingly. None of the pressures are speculative.

1.1 The Great Crew Change

The retirement of the workforce that built and operates today's industrial estate is not a soft HR theme; it is a dated, demographic event. The American Petroleum Institute has estimated that as many as 50% of skilled energy workers may retire within five to seven years, and that approximately 71% of the energy workforce is aged 50 or older [1]. The Society of Petroleum Engineers, which originated the term 'Great Crew Change,' and 451 Research have both identified this transition as a primary driver of industrial technology adoption across oil and gas, mining and manufacturing [5]. Mercer's recent research finds that more than 50% of oil and gas professionals plan to retire within five to ten years, increasing operational risk and knowledge loss unless practice is standardised and made data-driven [6]. Comparable patterns are documented across the hazardous-area industries.

The implication is not abstract. The undocumented know-how - which valve is sticky, which procedure has informal corrections, which start-up sequence has a subtle dependency on ambient temperature - lives in the heads of operators who are leaving. The question is whether that knowledge gets encoded into systems before it walks out the gate. Reactive responses, including re-hiring retirees as expensive contractors, are already common [8], but they do not capture the knowledge in any reusable form.

1.2 Unplanned Downtime

Unplanned downtime is the most direct, well-instrumented financial cost of operational failure. A Kimberlite study, widely cited and reproduced by GE and others, found that the average offshore oil and gas platform loses approximately $38 million per year to unplanned downtime, with the worst performers losing up to $88 million, and that even 1% of unplanned downtime - about 3.65 days per year - costs approximately $5 million [2]. Average offshore facilities experience 27 days of unplanned downtime per year [2]. Comparable industrial unplanned-outage costs in the range of $125,000 per hour are documented by ABB across heavy industry [2].

The same study found that operators applying predictive, data-driven maintenance experienced 36% less unplanned downtime - approximately $17 million in annual savings

[2]. This precedent matters across industries: it establishes that structured, data-driven approaches to operational integrity routinely produce eight-figure annual savings on a single facility, well within the order of magnitude this paper proposes for Illuminated Intelligence at estate scale.

1.3 Human Error in Process Safety

Industry process-safety research consistently identifies human and organisational factors as the dominant causal layer in major incidents. Industry reviews place human error as a contributing factor in up to approximately 70% of oil and gas incidents [9], and process-safety analyses of major incident reports attribute knowledge-based mistakes to approximately 48% of major incidents [10].

These are not failures of motivation or attention; they are failures of procedure clarity, situational knowledge, and verification - precisely the layer Illuminated Intelligence is designed to address, and the layer that maps directly onto chemicals, mining, power and pharmaceuticals as well as oil and gas.

1.4 The Process-Safety Cost Curve

The financial cost of major process-safety failure is not normally distributed; the tail is catastrophic. The 2010 Macondo / Deepwater Horizon incident - eleven fatalities, environmental damage of historic scale - resulted in settlements totalling $18.7 billion with US federal and state authorities and $20.8 billion in environmental damage [11], with BP's total cumulative costs reaching approximately $65 billion as reported through 2018 [3]; one peer-reviewed academic analysis places the true all-in cost, including hidden categories not reportable under existing accounting, at approximately $145 billion [12]. Analogous tail-risk events in other hazardous industries - major refinery and chemical incidents, mining disasters, power generation failures, pharmaceutical contamination events - carry comparable orders of magnitude in liability and reputational cost.

This is the comparison that matters. Priced against a training or L&D budget, a $20 million programme looks expensive. Priced against the present-value cost of even partial reduction in the probability of a single major process-safety event, it is a rounding error. The correct buyer for this programme is therefore not the learning function. It is operations leadership and the board's process-safety and risk committee.

2. Why Existing Scans Are Stranded Capital

Operators across hazardous industries have invested heavily over the past decade in reality capture: laser scans, photogrammetry, and 3D point clouds of producing assets across the estate. This investment is sound: the geometry is recorded, accurate, and current. The problem is that captured geometry, on its own, is not an operational asset. A scan of a wellhead, a reactor train, a stope haul or a turbine bay is a single fused mesh - a sculpture in data - that cannot be reasoned about as a set of components. A trainee cannot operate it. A simulator cannot fail it. A field worker cannot be guided through a procedure on it. Maintenance history cannot attach to the right valve, because there is no 'right valve' to attach to.

The unlock - the single technical step that separates dead scans from a live operational asset - is decomposition: converting a fused mesh into named, separated, addressable sub-components. Once decomposed, each valve, actuator, sensor, spool, reactor section, conveyor segment or generator stator becomes its own object that the system can reason about, attach knowledge to, and simulate independently. This is the partner capability around which the programme is organised and pilot-gated; the paper returns to it in Section 9.

The strategic point is straightforward: operators have already paid for the hardest part - the high-fidelity capture of complex industrial geometry across thousands of assets in producing environments. The capital is real and on the books. What is missing is the pipeline that turns it into something operable. Illuminated Intelligence is that pipeline.

3. The Illuminated Intelligence Architecture

Illuminated Intelligence is a five-stage pipeline that converts an existing scan into trained competence and guided field execution, then closes the loop by feeding measured field outcomes back into the twin and the training. Each stage uses technology that is in production today; nothing is invented for this proposal.

3.1 Stage 1 - Scan (Existing Capital)

Reality capture is already complete and owned by the operator. No new capture is required to begin the programme; the pilot uses scans the operator selects from its existing library.

3.2 Stage 2 - Decompose (The Partner Unlock)

A specialist partner separates the fused mesh into addressable sub-components - for example, splitting a wellhead 'Christmas tree' into its master valves, wing valves, choke, actuators, spools, flanges, sensors and tubing hanger; a pump skid into its components; a reactor train into its sections; a power-generation unit into its turbine and ancillaries. Each component carries an identity the system can reason about. This is the stage with the greatest external dependency and is treated accordingly in Section 8.

3.3 Stage 3 - Simulate (Genesis 3)

EON's Genesis 3 engine - the company's world-centric authoring environment - makes the decomposed twin behave: valves open and close, states change, faults can be injected, and a worker is walked step-by-step through real procedures such as isolation, lock-out-tag-out, start-up, confined entry, validation, and commissioning, with each attempt scored against the procedure of record. The training is built once, on the same twin that will later drive the field guidance.

3.4 Stage 4 - Illuminate (FieldIQ on Certified Glasses)

On certified industrial smart glasses with voice control, the worker looks at the real asset and EON's FieldIQ layer surfaces the right step, the relevant schematic, the hazard, the historical context, and an AI verification that the step was actually performed correctly. The field experience is built deliberately as assisted reality - voice-driven step cards, remote-expert video, and verification - rather than full immersive holography. The reason is operational, not technical: certified hazardous-area hardware does not support immersive overlays, and the field worker requires a high-clarity reference, not a spectacle.

3.5 Stage 5 - Scale and Learn

Every guided task creates structured data - which steps were difficult, which were corrected, which procedures showed ambiguity, which assets generated the most rework. This becomes both an operational intelligence stream and an authoring input that improves the next iteration of the training and field content. The same twin gets better the more it is used.

3.6 One Twin, Two Surfaces

The decisive architectural point: the simulator and the glasses are not two projects. They are the same decomposed twin, used twice. Authoring effort spent on the training is the field guidance. The cost of building the twin is paid once and recovered twice - in faster, safer competence in the safe zone, and in fewer field errors on the live asset.

4. Evidence That the Approach Works

Each component of the Illuminated Intelligence stack has independent, public evidence behind it. None of the constituent technologies is novel; the novelty is in their composition into a single operational pipeline anchored on already-captured scans.

4.1 Immersive Training Is Measurably More Effective

PwC's study, 'Understanding the Effectiveness of VR Soft Skills Training in the Enterprise,' is the most rigorous published evidence on immersive training outcomes. Across matched-cohort training delivered in classroom, e-learning and VR formats, PwC found that VR-trained employees were 275% more confident applying their skills, four times faster to train than classroom learners, and 3.75 times more emotionally connected to the content [13]. PwC further estimates immersive training will contribute approximately $294 billion to the global economy by 2030 [13].

Adjacent industrial studies are consistent: Accenture has reported 17% faster time-to-completion and higher accuracy in skilled-labour VR training, and a study presented at the Minesafe International Conference reported a reduction in lost time from injury following VR safety training introduction in mining [14]. Walmart, an early at-scale industrial deployment, has reported 10-15% performance improvement on VR-trained tasks [14]. These are not toy effects; they are the consistent finding across rigorous workplace studies, across industries.

4.2 Digital Twins in Oil and Gas Are Operational, Not Theoretical

Industry adoption of digital twins is well past the pilot stage. Equinor's Echo digital twin platform was rolled out across more than 6,000 employees, allowing field workers to enter the twin from offshore installations and onshore offices alike [15]. BP's APEX and VNet platforms apply digital-twin-based monitoring to offshore production equipment and pipeline networks, with BP reporting up to 99% accuracy in pipeline leak detection [16]. Shell uses digital twins in pre-production validation for deepwater fields, with intrinsically safe AR headsets, tablets and cloud collaboration deployed to field crews [17]. A North Sea reservoir-twin case study demonstrated 10% production-efficiency improvement through real-time calibration [16].

The peer-reviewed literature reflects this maturation: Wanasinghe et al.'s 2020 IEEE Access overview of digital twins in oil and gas identifies safety improvement, worker training and removal of personnel from hazardous and remote locations as primary application areas [18]. GlobalData has documented active digital-twin programmes at ADNOC, BP, Eni, Equinor, ExxonMobil, Repsol, Shell and TotalEnergies [19]. The same pattern of adoption is documented across chemicals, mining, power and pharmaceuticals. The question is not whether industrial digital twins work; it is whether the operator has captured them deeply enough to drive field execution and to capture the data that compounds.

4.3 Hazardous-Area Wearables Are in Production Today

Connected-worker technology in hazardous environments is constrained by intrinsic-safety certification. The RealWear Navigator Z1 - built jointly with i.safe MOBILE - is one of the small set of devices certified for ATEX Zone 1, IECEx, CSA Class I-Div 1 and UKCA, and is purpose-built for professionals working in combustible environments across oil and gas, mining and chemicals [20]. It is a voice-controlled, hands-free wearable that runs Android with a high-clarity micro-display, four-microphone noise cancellation effective in plant noise up to approximately 100 dBA, IP66 ruggedisation, full-shift removable battery and an optional FLIR thermal-camera module for gas-leak detection and pipeline inspection [20].

EON's FieldIQ specification - voice-driven step cards, hands-free workflow, remote-expert video and AI verification - was designed as assisted reality from inception, and ports directly onto the Z1's Android and voice-first stack with no redesign. The honest limit is also true: the Z1 is an assisted-reality device, not an immersive AR headset. Immersive 3D lives in the safe-zone training environment; the field gets clear, verified guidance. This is the right model for HSE acceptance in any hazardous industry.

5. The Business Case

The business case is presented as an illustrative deployment - a workforce of approximately 12,000 users covering both employees and the rotating contractor population that touches the in-scope assets. Hardware is split between consumer-class glasses for safe and training zones and a pooled fleet of certified RealWear Z1 units for the hazardous zone. Software is modelled at $1,200 per user per year, with alternatives in Section 9. Content creation is scoped to approximately 250 priority models at $10,000-$25,000 each, with an average of $17,500. The structure scales to any operator's footprint; the ratios hold.

5.1 Investment

Investment Line	Basis	Amount
One-time - consumer / training glasses	12,000 x $800	$9.6M
One-time - certified field fleet (Z1, pooled)	~2,000 x ~$3,000	$6.0M
One-time - content creation	~250 x ~$17,500	$4.4M
Total one-time		$20.0M
Recurring - software licence	12,000 x $1,200 / yr	$14.4M
Recurring - content refresh	~15% of content / yr	$0.6M
Recurring - device service / refresh	~10% of fleet / yr	$0.6M
Total annual		$15.6M

5.2 The Five Cost Reductions

Savings are modelled across five categories, each anchored to a public benchmark and applied conservatively. The realistic case shifts a single line - downtime - to the lower end of industry benchmarks and produces materially larger total savings.

Reduction	Benchmark Anchor	Conservative	Realistic
Fewer safety incidents	Human error a factor in up to ~70% of O&G incidents [9]	$2.8M	$4.5M
Less unplanned downtime	$125-260k / hr; ~$38M / yr per offshore site [2]	$5.0M	$15.0M
Faster time-to-competence	VR approximately 4x faster than classroom; +275% confidence [13]	$5.0M	$6.0M
Knowledge retention	~48% of major incidents reflect knowledge gaps [10]	$3.0M	$4.0M
Less rework / first-time-right	Guided + verified execution	$3.0M	$4.5M
Total annual savings		$18.8M	$34.0M

5.3 Return on Investment

Against the conservative annual saving of $18.8 million, net of run cost the programme yields approximately $3.2 million per year - positive, but with payback measured in years. Against the realistic case of $34 million in annual saving, net yields approximately $18.4 million per year, with payback of approximately 1.1 years and cumulative five-year net of approximately $72 million. The candour in this paper is that at a flat $1,200 software licence, the conservative-floor ROI is thin - which is why the pilot is outcome-gated and the commercial structure is treated as a deliberate choice in Section 9.

6. Security and Safety Architecture

Operational acceptance of this programme hinges on two architectural points that are non-negotiable for any operator of hazardous industrial assets: that no uncertified device enters a hazardous area, and that scans of critical infrastructure are governed to an operator-grade standard. Both are addressed by design.

6.1 Intrinsic Safety - The Three-Zone Model

Every site has safe zones - training rooms, control rooms, workshops - and hazardous zones - live process equipment, confined spaces, areas with potential explosive atmospheres. Illuminated Intelligence matches the device to the zone. In safe and training environments, consumer-class glasses - Meta-class hardware - drive immersive Genesis 3 simulation; no intrinsic-safety certification is required. In hazardous zones, only certified hardware is enabled - specifically the RealWear Navigator Z1, certified to ATEX Zone 1, IECEx, CSA Class I-Div 1 and UKCA [20], deployed as a pooled fleet of approximately 2,000 units serving shifts rather than 12,000 personal devices, to control cost. Borderline cases are handled from the zone edge or guided remotely via the certified device's camera. The programme invents no hardware and waits for no certification.

6.2 The Certified Field Device

The RealWear Navigator Z1 is a hands-free, voice-controlled wearable computer worn on a hard hat or band. Technical highlights include the Qualcomm QCS6490 processor running Android 12 with the WearHF voice-first interface; an outdoor-visible 720 x 1280 LCoS micro-display; 48-megapixel autofocus camera with image stabilisation; four-microphone active noise cancellation effective in plant noise up to approximately 100 dBA; IP66 ruggedisation; full-shift removable battery; and an optional FLIR Lepton 3.5 thermal-camera module for gas-leak detection and pipeline inspection [20]. In the certified configuration, the battery is screwed in and may only be exchanged or charged outside the hazardous zone - a deliberate safety constraint, not a defect.

The Z1 is assisted reality, not immersive AR; the field worker glances at a clear reference screen rather than wearing a holographic overlay. This is the right trade-off in a hazardous area: full situational awareness, no occlusion of the real environment, and no certification dependency on optical components that do not yet exist for Zone 1.

6.3 Data Governance and Operator-Grade Compliance

Six commitments make the security and safety architecture explicit:

- Device-agnostic design - the value is the twin and the platform; hardware is a swappable, certified component.

- Zone-aware governance - co-authored with HSE, each task maps to its area classification, and only a modality certified for that zone is enabled.

- Fleet-managed control - the certified estate is a locked MDM fleet with provisioning, remote wipe, app whitelisting and no consumer sideloading.

- Data residency and IP - residency, access and twin/IP ownership are agreed at contract; the operator owns the decomposed twin and its derived corpus in exportable formats.

- Verifiable audit trail - AI verification records each step, creating an immutable evidence chain for safety-critical work.

- Least-exposure - only the geometry and procedures a task requires are served; sensitive components are scoped, not broadcast.

7. Strategic Upside: The Data Flywheel and the Autonomous Frontier

The operating case in Section 5 stands on its own. The strategic case is larger, and is the part most operators are currently missing. Three points compound: a leading-indicator data stream that does not exist today; a data-capture flywheel that builds a proprietary training corpus for industrial autonomy; and a set of operational precedents that show robotic execution of inspection-grade tasks is already moving from pilot to production at supermajors.

7.1 Leading-Indicator Safety and Procedural Analytics

Procedural failure is currently invisible. Operators learn about it after an incident, in the form of an investigation. Each FieldIQ verification produces structured truth nobody can see today: which steps people get wrong, which procedures are ambiguous, which assets generate the most rework, and what near-miss precursors actually look like. This is leading-indicator safety analytics - a category that operators in every hazardous industry have wanted for two decades, and that the connected-worker layer makes possible for the first time.

The data also feeds procedure optimisation: when 38% of crews fail step 12 of a procedure, the problem is the procedure, not the people, and the system surfaces it. And the audit trail is, in itself, a regulatory and insurance asset - an immutable record of safety-critical work performed correctly.

7.2 The Data-Capture Flywheel - The Amazon and Tesla Playbook

Amazon, Tesla and Waymo all run the same operational playbook: deploy humans-with-sensors at scale; capture the long tail of real-world edge cases; train autonomy on the corpus. For hazardous industrial work, that data does not exist on the public internet, in any vendor's training set, or in any peer's archive. It lives, today, in the hands and heads of operators who are retiring. An estate-wide, decomposed-twin-anchored capture programme builds, as a byproduct of the safety work the operator should be doing anyway, the largest proprietary corpus of hazardous-industrial procedural data the operator's industry has ever had.

The decisive architectural point - and the reason the twin matters more than the glasses - is that raw video is essentially worthless for training future autonomy. What is valuable is labelled, outcome-tagged data anchored to a model of the world. The decomposed twin is what makes the captured action structurally meaningful: this step, on this component, with this outcome, with this correction. Without it, the camera is just a camera. With it, every shift improves the corpus.

7.3 The Robotics Precedent Is Operational, Not Speculative

Robotic execution of inspection-grade hazardous-area tasks is already in production at supermajors. BP deployed Boston Dynamics' Spot to its Mad Dog platform 190 miles offshore in the Gulf of Mexico in 2020 for autonomous pipe inspection, pressure-vessel readings, and mechanical anomaly detection, with public reporting of significant reduction in helicopter mobilisation costs and elimination of human exposure to hazardous offshore conditions [4]. Aker BP and Cognite deployed Spot on the Skarv installation in the Norwegian Sea to perform autonomous inspections, hydrocarbon-leak detection and self-generating maintenance reports [21]. Woodside operates Spot - locally branded 'Spector' - at its Pluto LNG facility in Australia for routine inspection, including regulatory visual inspections of electrical equipment under the company's performance-based programme [22]. Comparable robotic deployments are documented in mining, power generation, and increasingly in chemicals.

Two important caveats. First: today's robotic deployments are inspection-grade, not full-manipulation autonomy. Dexterous operation of valves and flanges in unstructured conditions, certified for ATEX Zone 1, is years away - and a programme that promised otherwise would lose the room. Second: the value of Illuminated Intelligence's data capture is not contingent on a date for full autonomy. The capture is justified by the safety and downtime ROI on its own; the data is a free call option whose value cashes out whenever the autonomy matures. The first operator with the data corpus is the first to remove people from the work that hurts them.

The reframe. This programme can be read three ways: as a training and field-guidance system that reduces incidents and downtime today; as a leading-indicator safety-analytics platform that surfaces procedural failure before it becomes an incident; and as the data substrate for industrial autonomy as it matures. The investment case stands on any one of the three. The strategic case rests on all three compounding.

8. Risks, Realism, and How the Pilot Retires Them

This paper takes the position that the strongest version of a case is one that names its own risks and then retires them. There are four real risks; each is addressed inside the pilot rather than waved away.

8.1 Hazardous-Area Hardware

Most consumer smart glasses are banned in Zone 1. This is true, and it is the reflexive deal-killer if not addressed. The programme's answer is the three-zone model in Section 6.1, with the certified RealWear Z1 fleet pooled in the red zone. The hardware exists, is in production, and is field-proven across hazardous industries today.

8.2 Decomposition Fidelity at Scale

Automated decomposition of fused 3D meshes into accurately named, oriented and addressable sub-components is the one new dependency in the pipeline, and it is genuinely difficult. The programme does not commit to scale on this; the pilot proves the partner on a representative sample of real operator assets, with an SME-scored accuracy gate that the partner must pass before any scale commitment. Vendor commercials are outcome-linked.

8.3 Knowledge-Authoring Effort

Decomposed geometry is not knowledge. Procedures must be authored onto the twin - the right step order, the right hazards, the right verification gates - and that is labour. The programme is honest about this: the authored procedure library is the real defensible asset that compounds. The pilot scope deliberately starts with one to two high-consequence procedures end-to-end, not a long thin library, so that authoring quality is the prize rather than authoring quantity.

8.4 Adoption and Change Management

Wearable adoption is the quiet programme-killer in connected-worker deployments. Two design decisions reduce this risk substantially: assisted reality rather than immersive AR, which keeps friction low and preserves full situational awareness; and co-design with HSE and the crews themselves rather than top-down rollout. Voluntary usage is measured in the pilot as a primary success metric.

8.5 Data Security and IP

Engage cyber, IP and procurement reviewers early - before pilot, not after. Reuse the operator-grade compliance playbook from prior major-operator engagements. Agree data residency, access controls and twin/IP ownership at contract. None of these are unusual asks; they are the same conversation any serious connected-worker vendor must have, and the programme has a defensible answer for each.

9. Commercial Architecture and Recommended Pilot

9.1 Three Commercial Structures

Pricing structure is presented as an explicit choice to be locked on pilot evidence, not as a default.

Option A - Flat licence. 12,000 users x $1,200 per year, illustrative. Maximum vendor ARR. The customer's conservative-floor ROI is thin under this structure; the case relies on the realistic savings being delivered. Best when pilot evidence is strong enough to justify the flat number to procurement.

Option B - Tiered licence (recommended). Full licence for the approximately 1,000 authors, trainers and trainees who use Genesis 3 deeply; lighter field licence for the approximately 11,000 field users on FieldIQ. The customer's floor-case ROI works; EON AI Ventures still builds material recurring revenue that grows with scale. This is the de-risked land-and-expand structure and the default recommendation.

Option C - Outcome-based. Share of measured avoided cost - payment scales with realised value. Largest upside if the realistic case holds; dissolves the procurement fight over per-seat pricing; and signals real conviction by placing operational risk on EON AI Ventures. The most differentiated structure and worth proposing actively.

9.2 The Pilot - Pick Your Sharpest Moment

Every hazardous-industry operator has the same kind of event - time-boxed, procedure-dense, with measurable overrun and safety exposure. That is the right pilot context: concentrated, fast, unambiguous. The specific moment varies by industry; the principle does not.

Industry	Sharpest Pilot Moment
Oil & gas	A planned turnaround (TAR) - time-boxed, contractor-heavy, millions per day of overrun risk
Refining & chemicals	A planned shutdown, unit revamp, or major catalyst changeout
Mining	A scheduled maintenance window, stope move, or mill shutdown
Power & utilities	A planned outage, boiler inspection, or commissioning of a new unit
Pharmaceuticals	A validation campaign on a critical line, or tech transfer to a new facility
Defence	A scheduled platform overhaul, commissioning, or major training cycle

Whichever moment is chosen, the pilot structure is the same:

- Scope. One named upcoming event. The top three-to-five critical procedures end-to-end on the in-scope assets. The contractor and employee crews who will execute it.
- Build. Decompose the in-scope assets. Author the procedures into Genesis 3. Build the corresponding FieldIQ surfaces. Deploy a small Z1 pool for the red-zone work. Co-author the security and zone-governance model with HSE.
- Measure. Pre-agreed metrics against the operator's own baseline: time-to-competence, procedural-error rate, schedule slip, rework. Voluntary usage of the field surfaces. Safety leading indicators captured.
- Commercial. Pilot priced on outcome where possible. Scale commitment is gated on measured success against the pre-agreed metrics, with the commercial structure selected on real evidence.

10. Conclusion: The Window Is Now

The pressures hazardous industries face are not new. The four - workforce demographics, unplanned downtime, human factors in process safety, and the tail risk of catastrophic incident - have been documented for two decades. What is new is that, for the first time, the components required to address them as a single system are in production: existing scans operators already own; an authoring engine that turns those scans into operable procedures; certified hazardous-area wearables that surface those procedures to the worker; a verification layer that converts execution into structured data; and operational precedents in autonomy that turn that data into a long-term option of historic value.

The window is the convergence of these conditions with the closing one - the retirement of the workforce that holds the undocumented knowledge. Once that workforce is gone, the knowledge does not come back, and the corpus that could have been built becomes one that cannot. The programme this paper describes is, in essence, an offer to capture that knowledge into a structured asset before the window closes - and to do so on terms, a pilot, against real numbers, with measured commercial structure, that any rigorous operator would set if asked to design the pilot from scratch.

The recommendation. Greenlight a single-segment pilot organised around your sharpest upcoming high-consequence moment. Agree the measurement framework against your own baseline. Engage HSE, cyber and procurement reviewers up front. Lock the commercial structure on the pilot's measured results, not on projections. Everything in this paper is built to support that pilot - and to give you control of the decision at every gate.