EON Genesis 2.0

Unified AI Training Platform
Comprehensive Technical Specification

Type → Generate → Train → Certify

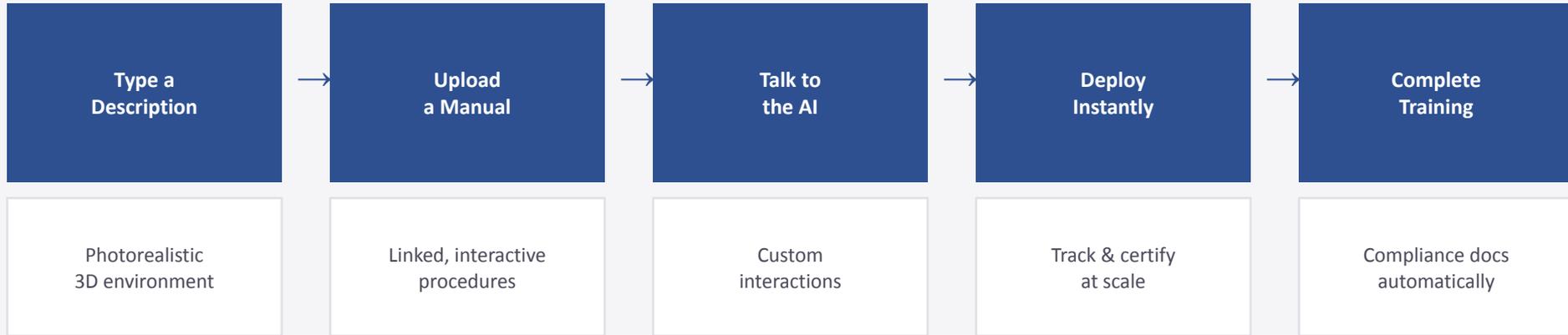Master Document — Complete Product & Technical Reference
40–50% of core functionality already exists in working code

The Core Promise

Turn any procedure into an immersive, AI-guided training experience in 20–35 minutes.

Type a Description		Upload a Manual		Talk to the AI		Deploy Instantly		Complete Training
Photorealistic 3D environment	→	Linked, interactive procedures	→	Custom interactions	→	Track & certify at scale	→	Compliance docs automatically

Traditional Training	EON Genesis 2.0
Weeks to create content	20–35 minutes
Multiple disconnected tools	Single unified platform
Static 2D materials	Immersive 3D experiences
Passive consumption	Active, hands-on practice
Manual progress tracking	AI-powered analytics
Generic assessments	Tri-Modal verification (DO/SAY/SHOW)
Siloed content	Creator marketplace ecosystem

Four Problems We Solve

Fragmented Training Workflows

Organizations juggle 6+ disconnected tools for authoring, video, 3D, LMS, assessment, and analytics. Genesis 2.0 consolidates all into one platform.

Knowledge Loss from Retiring Workforce

10,000+ baby boomers retire daily in the US. 30+ years of tacit knowledge walking out the door. Teach-Back missions capture expertise before it's lost.

Inadequate Competency Verification

Multiple-choice tests measure recall, not capability. Tri-Modal Assessment (DO/SAY/SHOW) verifies the learner can perform, explain why, and confirms identity.

Safety and Compliance Gaps

Classroom training doesn't simulate hazards. Safety Gating ensures prerequisite completion before dangerous procedures, with tamper-proof audit trails.

Three Target Markets

Enterprise, Education, and Consumer — each with tailored features and pricing.

ENTERPRISE
AI Ventures

Fortune 500, large manufacturers, healthcare, energy

- Custom environment generation
- Enterprise LMS/HR integration
- Advanced analytics & compliance
- SSO + role-based access
- On-premises deployment option

90% faster development, 60–80% cost reduction, 4× retention

EDUCATION
Virtual Campus

Universities, vocational schools, K-12 STEM

- Academic licensing, multi-institution
- Curriculum alignment & gradebook
- Collaborative learning environments
- Research mode for analytics
- Accessibility for diverse learners

Hands-on without expensive labs, safe practice, scalable

CONSUMER
Oh-Wow

Individual learners, career changers, hobbyists

- Freemium + premium subscriptions
- Marketplace for affordable training
- Personal progress & achievements
- Social features & community
- Mobile-first, learn anywhere

Professional training at consumer prices, verifiable credentials

Eight Core Platform Components

Each component includes implementation status: EXISTS, PARTIAL, or NEW development required.

1	**2**	**3**	**4**
3D Environment Engine	**3D Object Generator**	**Scene Composer**	**Auto-Annotation**
PARTIAL	NEW	EXISTS	EXISTS
Text-to-photorealistic 3D via Gaussian Splatting + Marble API	Text-to-3D objects with automatic part segmentation via Hunyuan3D	Drag-and-drop 3D object placement, scaling, rotation, grouping	AI-generated 3D labels — standard, safety, procedure, interactive
5	**6**	**7**	**8**
Experience Layer	**Train AI (SOP Extraction)**	**Simulated IoT System**	**Data Flywheel**
PARTIAL	EXISTS	NEW	PARTIAL
HeyGen avatar with lip-sync + drone controller + coordination	Upload manuals → auto-extract linked, interactive procedures	8 virtual sensor types for realistic equipment behavior	Performance tracking, analytics, compliance documentation

Experience Layer: Avatar + Drone

HeyGen LiveAvatar with natural dialogue + intelligent drone controller for guided navigation.

HeyGen AI Avatar

- Photorealistic appearance with lip-sync

- Natural language conversation via OpenAI GPT-4

- Context-aware responses based on procedure and learner state

- Emotional expression and gestures

- Guides learners through Show Me, Train, Let Me Try phases

- Conducts oral assessment in Evaluate Me phase

- Configurable personality, language, and expertise domain

Drone Controller + Coordination

- Intelligent navigation with collision avoidance

- Laser pointer for component highlighting

- Fly-to, orbit, zoom, and point commands

- Avatar triggers drone: "Let me show you the panel"

- Smooth transitions between navigation points

- Path planning around obstacles

- Coordinated avatar narration + drone pointing

Key Feature Specifications

Safety Gating, Tri-Modal Assessment, and Creator Marketplace.

Safety Gating System

- Prerequisite — complete other training first

- Time-Based — min time since previous training

- PPE Check — verify safety equipment worn

- Authorization — supervisor approval required

- Recertification — time since last certification

Tri-Modal Assessment

DO Performance assessment — complete procedure in 3D, actions scored for accuracy, sequence, time, safety

SAY Oral assessment — avatar asks WHY questions, AI evaluates completeness, terminology, reasoning

SHOW Identity verification — facial recognition confirms the certified person actually took the training

Creator Marketplace

- Creators publish & monetize training content

- Standard tier: 80/20 revenue split

- Featured tier: 75/25 with promotion

- Enterprise: negotiated licensing

- Rating, review, and search system

- Industry-specific content libraries

- Quality assurance & certification

Nine Mission Types

From standard operations to teach-back and competitive speed runs. Each targets different skill domains.

Mission Type	Primary Skill	Time Pressure	Status
Standard Operation	Procedural execution	Low	EXISTS
Exploration	Equipment familiarity	None	PARTIAL
Decision	Judgment / reasoning	Variable	NEW
Assembly/Disassembly	Physical manipulation	Medium	NEW
Fault Diagnosis	Problem-solving	Low	NEW
Safety Inspection	Hazard recognition	Medium	NEW
Emergency Response	Crisis management	High	NEW
Teach-Back	Knowledge transfer	None	NEW
Competitive Speed Run	Procedural fluency	High	NEW

Nine Recipe Types

Recipes are structured learning pathways. Each optimized for a different training objective.

Recipe Type	Best For	Key Feature	Status
Challenge-Based Hard Skills	Technical procedures	Gap reveal before learning	NEW
Soft Skills	Interpersonal skills	AI role-play scenarios	NEW
SOP Compliance	Regulated procedures	Strict sequence enforcement	EXISTS
Troubleshooting	Problem-solving	Systematic diagnosis	NEW
Certification Prep	Exam preparation	Practice assessments	PARTIAL
Safety Drill	Emergency response	Timed scenarios	NEW
Mentored Discovery	Exploratory learning	Socratic method	NEW
Knowledge Transfer	Expert knowledge capture	Interview-based	NEW
Competitive Challenge	Team engagement	Leaderboards	NEW

EON Interact: Conversational Builder

Create complex interactions through natural language. 7 triggers × 9 actions = unlimited behaviors.

7 TRIGGER TYPES

- click — user clicks component
- hover — user hovers over component
- proximity — camera approaches area
- sequence — specific sequence completed
- time — elapsed time threshold
- sensor — simulated sensor threshold
- voice — voice command recognition

9 ACTION TYPES

- highlight — visual effect on component
- speak — avatar speaks text with emotion
- fly — drone moves to position
- point — avatar points at target
- animate — play component animation
- sensor — change sensor value
- modal — show info popup
- sound — play audio effect
- state — change component state

Pre-Built Interaction Templates

Template	Components
Component Introduction	fly + speak + highlight + point
Safety Warning	proximity + speak + modal + highlight
Step Completion	sequence + speak + sound + animate
Sensor Alert	sensor + speak + highlight + modal
Equipment Demo	speak + fly + highlight + animate (sequence)

Gamification & Engagement

XP system, 7 levels, streaks, badges, leaderboards, daily challenges, and micro-rewards.

XP SYSTEM & 7 LEVELS

Level	Title	XP	Unlocks
1	Novice	0	Basic features
2	Apprentice	100	Avatar customization
3	Practitioner	500	Advanced recipes
4	Specialist	1,500	Leaderboards
5	Expert	3,500	Create content
6	Master	7,000	Beta features
7	Legend	10,000+	All + special badge

ENGAGEMENT FEATURES

Streaks
7-day = 1.25× XP, 14-day = 1.5×, 30+ = 2.0× XP multiplier

Skill Badges
Procedural competency, safety, equipment-specific

Social Badges
Help others, collaborative, team achievements

Leaderboards
Per-procedure rankings by score and time

Daily Challenges
Generated from interaction data, 75 XP each

Micro-Rewards
Confetti, sound effects, avatar celebrations

Avatar Encouragement
Dynamic, context-aware motivational messages

Technology Stack & Architecture

Frontend Framework	**React 18 + TypeScript**	UI components and state management
3D Rendering	**Three.js + React Three Fiber**	WebGL-based 3D rendering
Environment Rendering	**Gaussian Splatting**	Photorealistic environment display
Styling	**Tailwind CSS**	Utility-first styling
Backend Framework	**Express.js + TypeScript**	API server
Database	**PostgreSQL + Drizzle ORM**	Relational data storage with type-safe queries
Cache / Storage	**Redis + S3-compatible**	Session caching + asset storage
AI Models	**OpenAI GPT-4 + HeyGen**	NLP processing, avatar, content generation

Implementation Roadmap

6 phases over 12 weeks. From foundation to marketplace launch.

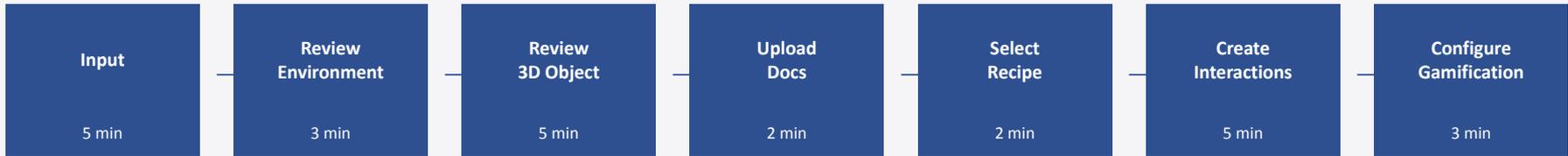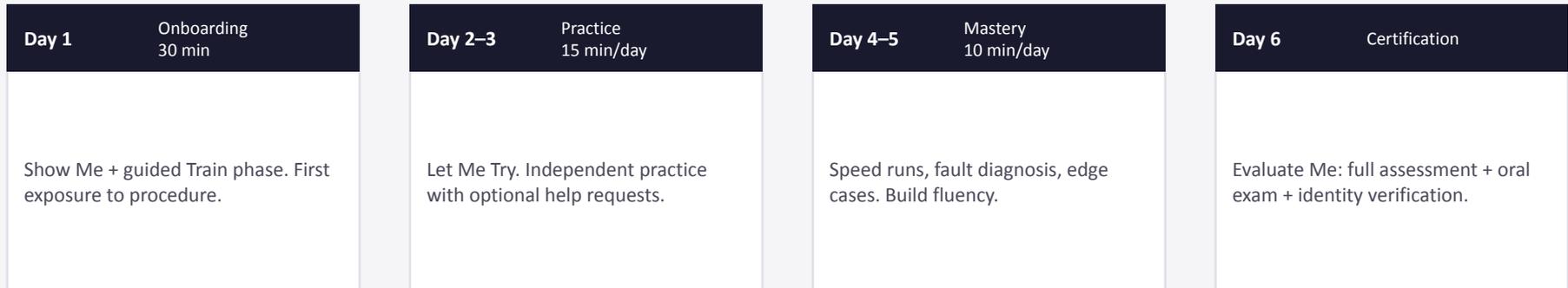| 1	2	3	4	5	6
FOUNDATION	**CONTENT GENERATION**	**TRAINING ENGINE**	**INTERACT SYSTEM**	**GAMIFICATION**	**MARKETPLACE & POLISH**
Weeks 1–2	Weeks 3–4	Weeks 5–6	Weeks 7–8	Weeks 9–10	Weeks 11–12
Port existing code, unified codebase, DB schema, auth system, basic UI shell	Environment engine (Marble API), object generator (Hunyuan3D), scene composer, auto-annotation	Recipe engine, SOP extraction, procedure playback, avatar integration, assessment system	Interaction builder, trigger/action engine, conversational authoring, IoT simulation	XP system, badges, streaks, leaderboards, daily challenges, avatar encouragement	Creator marketplace, research mode, analytics dashboard, final testing, launch prep

User Journeys

Training manager creates in 25 minutes. Learner completes certification in 6 days.

Training Manager Journey — 25 Minutes Total

Input	Review Environment	Review 3D Object	Upload Docs	Select Recipe	Create Interactions	Configure Gamification
5 min	3 min	5 min	2 min	2 min	5 min	3 min

Learner Journey — 6 Days to Certification

Day 1	Onboarding 30 min
	Show Me + guided Train phase. First exposure to procedure.

Day 2–3	Practice 15 min/day
	Let Me Try. Independent practice with optional help requests.

Day 4–5	Mastery 10 min/day
	Speed runs, fault diagnosis, edge cases. Build fluency.

Day 6	Certification
	Evaluate Me: full assessment + oral exam + identity verification.

Type. Generate. Train. Certify.

EON Genesis 2.0 — a single unified platform that transforms
any procedure into immersive, AI-guided training in 20–35 minutes.

8 Core Components | 9 Mission Types | 9 Recipe Types | 7 Trigger × 9 Action Types

Tri-Modal Assessment (DO/SAY/SHOW) | Safety Gating | Creator Marketplace
40–50% already built | 12-week implementation roadmap

25 Years of Innovation | 80+ Countries | 136+ Million Users

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