IMMERSIVE TRAINING SYSTEMS

Train the impossible. Until it's automatic.

Immersive Training Systems delivers defence-grade VR and Mixed Reality training environments where service personnel rehearse high-risk procedures safely, repeatedly, and at a fraction of the cost of live training. Every action logged, every decision measured, every skill objectively assessed.

IMMERSIVE TRAINING SYSTEMS

WHAT IMMERSIVE TRAINING IS

A defence-grade VR & MR training platform that lets service personnel rehearse the procedures they cannot afford to get wrong — *flight-deck emergencies, submarine damage control, helicopter lashing, combat casualty care* — until those responses are automatic.

Modern armed forces operate systems too expensive, too dangerous, and too rare to train on repeatedly in the physical world. VR and MR close that gap — building muscle memory and decision-making skills in photorealistic virtual environments before personnel ever touch the real thing.

The platform is built and supported by IDEA Foundation, deployed entirely on-premise behind base perimeters — no internet, no vendor cloud, no telemetry egress. This brochure sets out what the platform trains, where it deploys, and what it changes for the people on the deck, in the cockpit, in the compartment, and on the line.

CONTENTS

THE READINESS GAP

Physical assets cannot scale to the training the force needs.

Modern military training imposes demands physical platforms fundamentally cannot meet. Aircraft are too expensive to dedicate to drills, catastrophic scenarios are too rare to rehearse, and inter-unit standardisation is left to localised experience.

01 **Limited asset access**

High-value aircraft, ships and weapon systems cannot be tied up for repetitive drills — crews compete for rare live-training windows on operational platforms.

02 **Rare catastrophic scenarios**

Helicopter crash response, submarine flooding, CBRN incidents — events that occur once in years but must be executed flawlessly. Live rehearsal at the required cadence is impossible.

03 **Multi-role coordination complexity**

Flight-deck emergencies demand simultaneous, coordinated action across fire, rescue, medical and aviation teams. Synchronising a full crew live is prohibitively expensive and inherently dangerous.

04 **Standardisation deficit**

Heavy dependence on tribal knowledge and localised crew experience produces inter-unit variation. Two squadrons can execute the same SOP differently — and the difference shows up under pressure.

05 **Cost & risk of live error**

A mistake on a real flight deck risks personnel, aircraft and mission. The "fail safely, repeat until competent" loop that builds expertise is unavailable on live equipment.

06 **Subjective assessment**

Without instrumented training, evaluation depends on instructor judgement. Time-to-task, checklist adherence, and procedural deviation go unmeasured — and unimproved.

> Personnel need to **rehearse**, not improvise. VR & MR close that gap.

HOW IT WORKS

Rehearse safely. Execute under SOP. Measure every action. Replay every decision.

A four-stage loop turns every training session into a repeatable, instrumented exercise. Trainees fail safely, reset instantly, and repeat until competent.

1 Rehearse

Trainees step into a photorealistic VR or MR environment — flight deck, cockpit, submarine compartment, CBRN zone — and execute the scenario as if it were real.

2 Execute

SOP-driven workflows gate every step. Crew cannot bypass critical actions — correct muscle memory is built under pressure, not memorised from a manual.

3 Measure

Every decision, time-to-task, checklist deviation, and positional movement is logged automatically. Objective assessment replaces subjective evaluation.

4 Replay

Time-indexed 3D session replay lets instructors review each missed SOP step, response time and crew interaction — with the trainees inside the same scene.

75%	Zero	8	On-Prem
Knowledge retention vs 10% lecture	Risk to personnel or equipment	Training domains across tri-services	Fully air-gapped deployment

THE TRAINING CELL

What the trainee actually sees.

Mixed-reality overlays anchor procedural guidance to the real environment — checklists, spatial labels and SOP gates, rendered in the field of view, hands free.

SCHEMATIC MR TRAINING-CELL VIEW — PROCEDURAL CHECKLIST (LEFT), ROLE / TRAINEE PANEL (RIGHT), SPATIAL LABELS ANCHORED TO THE DECK (CHOCK NO. 12, LSO STATION, ARRESTING GEAR CABLE), AIRCRAFT SPOT DIRECTIVE AND VOICE-PROMPT CUE. ILLUSTRATIVE.

TRAINING DOMAINS

Eight domains. All three services. One platform.

From cockpit familiarisation to CBRN response, from engine maintenance to airborne ops — the same engine, the same analytics, the same on-premise deployment.

Aviation & Flight Ops

Cockpit familiarisation, emergency procedures, crew resource management, flight-deck drills, pilot extraction, helicopter landing in VR and MR.

Weapons & Equipment

Assembly, disassembly, operation and maintenance of weapons systems — no consumables required. Controller-integrated setups retain real-world weight.

Vehicle & Vessel Ops

Armoured vehicles, tanks, naval vessels, submarines, helicopters — realistic controls, terrain response and emergency-handling drills.

Fire, Damage Control & Rescue

Shipboard firefighting, compartment flooding, breach sealing, pilot extraction from crashed airframes, high-angle rescue.

Maintenance & Inspection

Aircraft, engine, submarine and weapon-system maintenance with step-by-step MR overlays on real or virtual equipment.

CBRN & Hazardous Environments

Incident response — donning/doffing protective gear, decontamination and casualty handling in fully simulated hazardous environments.

Parachute & Airborne Ops

Pre-jump rehearsal, exit drills, emergency procedures and landing techniques — without live-jump cost or risk.

New Platform Familiarisation

Rapid onboarding on newly inducted aircraft, ships and weapon systems. Trainees learn layout and operation before the asset arrives on base.

Beyond the Eight — Built to Your Requirement

CUSTOM DOMAIN

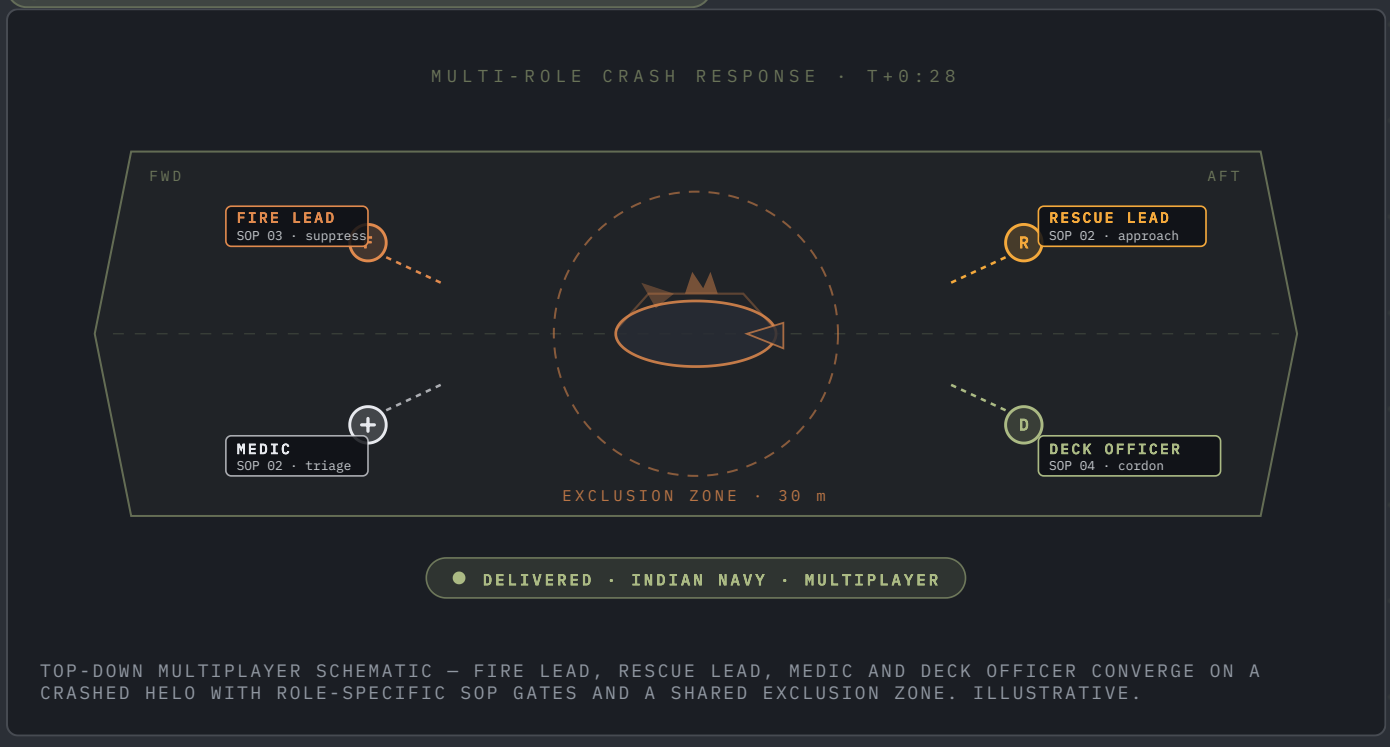
The eight above are what we ship out of the box. Anything else — a new platform, a mission profile, a service-specific drill — we model and integrate as a custom training domain on the same engine, with the same analytics and on-premise deployment.

FLAGSHIP SCENARIOS

Six scenarios already designed and ready to deploy.

Multiplayer, role-based, SOP-gated. Built with serving force inputs and ready for installation behind the wire.

DELIVERED · INDIAN NAVY · HELI LANDING & LASHING



TOP-DOWN MULTIPLAYER SCHEMATIC — FIRE LEAD, RESCUE LEAD, MEDIC AND DECK OFFICER CONVERGE ON A CRASHED HELO WITH ROLE-SPECIFIC SOP GATES AND A SHARED EXCLUSION ZONE. ILLUSTRATIVE.

01 **Aircraft Crash & Pilot Rescue**
Multiplayer VR/MR — fire, rescue and medical teams coordinate pilot extraction from a downed aircraft. Jet fuel fires, heat and smoke simulated. Proven with the Indian Navy.

02 **Helicopter Landing & Lashing — Delivered**
Full crew coordination for securing rotary-wing aircraft on a moving deck — sequencing, positioning, role discipline enforced via SOP gates. Delivered with the Indian Navy.

03 **Submarine Damage Control**
Compartment flooding, fire and toxic-gas scenarios inside a photorealistic submarine interior. Teams rehearse isolation procedures and escape routes.

04 **Flight Deck Emergency Response**
Full crew scenarios for carrier flight-deck emergencies — arresting-gear failures, FOD events, aircraft fires and mass-casualty triage.

05 **Combat Medic — TCCC**
Tactical Combat Casualty Care scenarios with realistic injury simulation, triage decision-making and field treatment under simulated fire.

06 **Aircraft Engine Maintenance**
MR overlay guides technicians through engine inspection and repair on the actual airframe — or VR practice on a photoreal digital twin.

PLATFORM CAPABILITIES

What every scenario inherits, out of the box.

Eight capabilities cover both the Mixed-Reality guidance layer and the simulation, analytics and instructor layer beneath every scenario.

MIXED REALITY LAYER

Spatial MR Overlays

Anchored training content rendered onto real equipment — labels, hazards and procedures locked to the physical world, not the headset.

Hands-Free Voice Interaction

Voice-driven prompts and confirmations keep both hands free for the work — the system guides, prompts and validates each procedural step.

SOP-Gated Workflows

Every scenario enforces Standard Operating Procedures step-by-step. Crew cannot bypass critical actions — correct muscle memory under pressure.

Live Error Detection

Incorrect actions detected in real time — immediate corrective feedback before an error propagates into a safety incident.

SIMULATION, ANALYTICS & INSTRUCTOR

Multiplayer Role Assignment

Networked sessions for squad, platoon or full-crew training. Each participant holds a specific role with role-specific prompts and responsibilities.

Scenario Configurator

Instructors customise scenarios on the fly — change weather, add casualties, inject equipment failures, adjust enemy behaviour, vary time of day.

After-Action Analytics

Time-indexed replay of every session. Review each decision, missed checklist item, time-to-task and positional movement. Exportable reports.

Offline & Air-Gapped

Full deployment behind the wire — no internet required. Designed for air-gapped defence networks from day one.

APPLICATIONS BY SERVICE

Tailored use cases for every service and joint command.

The same engine, the same analytics — scenarios configured to each service's operational reality.

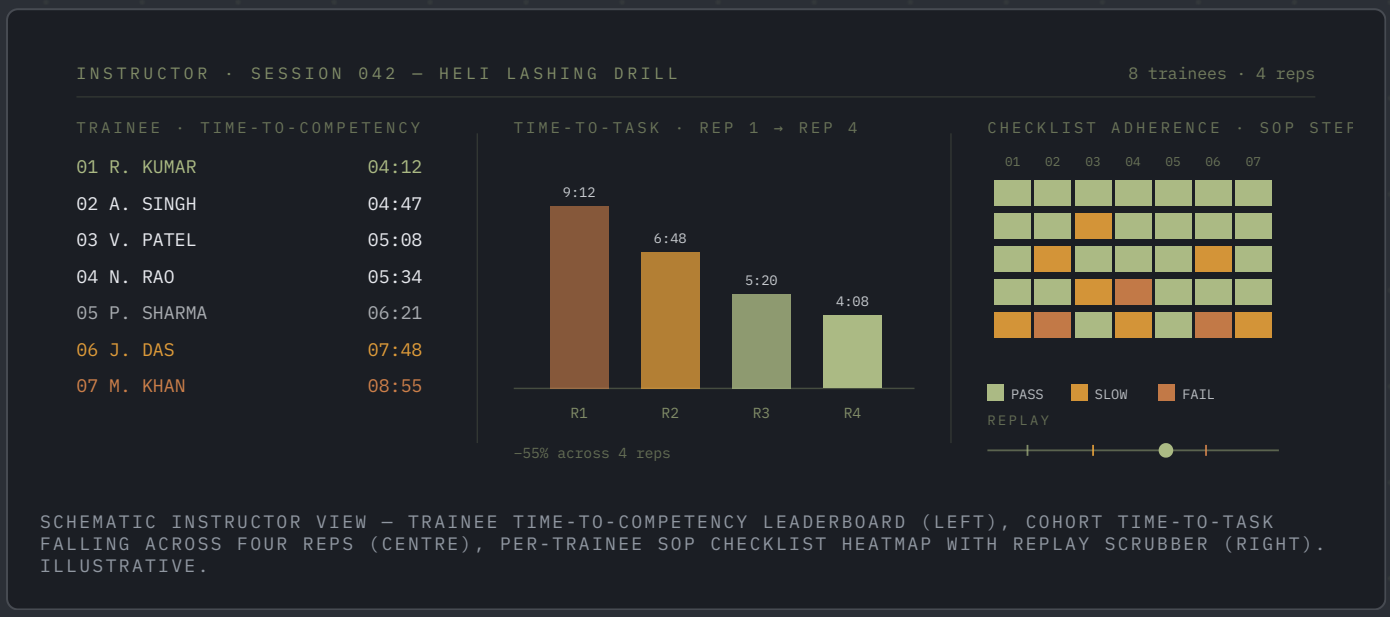
INDIAN ARMY	INDIAN NAVY	INDIAN AIR FORCE
ARMOUR Armoured vehicle & tank crew drills with terrain response.	**FLIGHT DECK** Emergency response, fires, FOD events and crash drills.	**COCKPIT** Cockpit familiarisation for new platforms before induction.
INFANTRY Small-arms familiarisation and weapon-system drills.	**AVIATION** Heli landing & lashing — **delivered**.	**EJECTION** Pilot ejection drills and post-ejection survival.
MEDIC Combat medic TCCC training with realistic injuries.	**SUBMARINE** Damage control — flooding, fire, toxic-gas response.	**GROUND CREW** Servicing procedures with MR overlays on the airframe.
COUNTER-IED Convoy drills with detection and route-clearance procedures.	**BRIDGE** Bridge team and navigation scenarios.	**ATC** Air traffic control emergencies and recovery procedures.
CBRN Joint response, donning/doffing and decontamination.	**BOARDING** Boarding party drills and breach-and-clear sequences.	**AIRFIELD** Firefighting, FOD walk and runway-incursion response.
ARTILLERY New artillery platform familiarisation pre-induction.	**MISSILES** Missile system familiarisation pre-induction.	**HELI OPS** Underslung load drills and high-altitude landing.

JOINT & TRI-SERVICES · **HADR COORDINATION** · **AMPHIBIOUS LANDING** · **CBRN JOINT RESPONSE** · **THEATRE WARGAMING**

MEASURABLE OUTCOMES

Objective KPIs — not subjective assessments.

Every deployment reports against the same instrumented KPIs. Instructors see what each trainee did, when, and how it compares to peer cohorts.



SCHEMATIC INSTRUCTOR VIEW — TRAINEE TIME-TO-COMPETENCY LEADERBOARD (LEFT), COHORT TIME-TO-TASK FALLING ACROSS FOUR REPS (CENTRE), PER-TRAINEE SOP CHECKLIST HEATMAP WITH REPLAY SCRUBBER (RIGHT). ILLUSTRATIVE.

01 Time-to-Competency
How fast trainees reach assessed proficiency on a given procedure or platform.

02 Error & Violation Rate
Drop in procedural mistakes across iterations — quantified improvement over time.

03 Checklist Adherence
Percentage of SOP steps completed correctly per session and per trainee.

04 Pass-First-Time Rate
Outcomes on mock inspections and formal evaluations after VR/MR preparation.

05 Instructor Time Saved
Hours of instructor effort reduced per trainee cohort versus traditional delivery.

06 Equipment & Consumable Savings
Cost avoidance against the live-training baseline — ammunition, fuel, aircraft hours.

WHAT'S IN THE DEPLOYMENT

Software, hardware, and people — configured to your establishment.

A complete training establishment supplied as one deployment. Headsets, instructor station, on-premise server, scenario library, and the engineers who install, train and sustain it.

SOFTWARE · 01

Simulation Engine & Scenario Library

The simulation engine, MR overlay renderer, SOP gating system, scenario configurator, after-action analytics — and the eight-domain scenario library. All running on the establishment's own infrastructure.

HARDWARE · 02

Headsets, Instructor Station & On-Premise Server

Qualified VR and MR headsets — standalone for forward-deployed bases, tethered PC-VR for premium fidelity. Paired with an instructor station and on-premise server sized to the establishment's cohort size.

DEPLOYMENT MODES · 03

Standalone · PC-VR · On-Premise · Hybrid

On-device headsets for distributed bases. Tethered PC-VR for dedicated training establishments. On-premise servers for air-gapped sites. Optional hybrid for cross-base benchmarking on sovereign cloud.

SUPPORT · 04

Custom Scenarios, Training & Sustainment

Scenario authoring against your SOPs, training-the-trainer programmes, model updates and ongoing maintenance — for the life of the deployment.

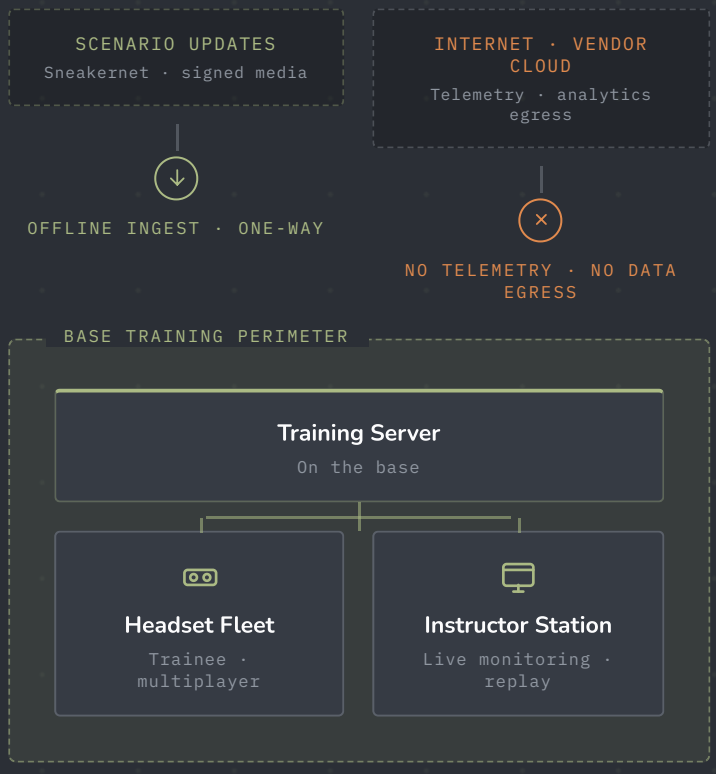
Configuration and pricing on enquiry — sized to establishment, cohort and scenario library.

SECURITY & SOVEREIGNTY

Your base. Your data. No external dependency.

Immersive Training Systems deploys entirely on-premise behind the base perimeter. No outbound telemetry, no vendor cloud, no remote-update channel. Session recordings, trainee analytics and after-action replays remain on the establishment's own server. Air-gap compatible by architecture.

- ✓ On-premise deployment on the base's existing infrastructure.
- ✓ Air-gapped operation — no internet, vendor cloud or outbound telemetry.
- ✓ Session recordings stay on the establishment's own server.
- ✓ Encryption in transit and at rest.
- ✓ Indigenous software stack — Atmanirbhar by design.



ABOUT IDEA FOUNDATION

10+ years building deep technology for the people defending the country.

IDEA Foundation is a deep-tech research and engineering organisation based in Panchkula, Haryana. We build artificial intelligence, geospatial and immersive systems for the Indian Armed Forces and allied agencies — Immersive Training Systems is one of our products.

10+ yrs

Cumulative leadership experience building deep-tech systems for defence and government use.

Multi-year

Sustained delivery and support of secure, on-premise and air-gapped systems for defence environments.

3 disciplines

Artificial intelligence, immersive systems, and geospatial intelligence — engineered in-house.

TRACK RECORD

IMMERSIVE TRAINING

Indian Navy

- Helicopter landing & lashing — delivered
- Multiplayer crash-response scenarios
- MR procedural-safety overlays

MISSION PLANNING

Holomap

- Immersive defence mission planning
- Terrain rehearsal in VR
- Air-gapped deployment

MARITIME AWARENESS

AMA & Plug Safe

- AR/MR AIS navigation (AMA)
- AI surveillance & analytics (Plug Safe)
- Air-gapped, on-premise, sovereign

DISCIPLINES

IMMERSIVE

Immersive Systems

VR and AR/MR environments for training, planning, rehearsal and real-time situational awareness.

AI / ML

Artificial Intelligence

Machine learning for command systems, intelligence analysis and real-time surveillance.

GEOSPATIAL

Geospatial Intelligence

Terrain modelling and satellite-imagery analytics.

Specific programme names and references available under NDA on enquiry.

Train the impossible — until it's automatic. Safer · Scalable · Measurable. Built behind the wire, for the forces defending the country.

ENQUIRIES

business@ideafoundation.co.in
+91 7087 081 892
www.ideafoundation.co.in

IDEA FOUNDATION

4th Floor, Leap Infratech Building
Plot No. 6, HSIIDC IT Park, Sector 22
Panchkula, Haryana