

AI ASSURANCE LAYER FOR CRITICAL SOFTWARE

NOVA

Convert AI speed into demonstrable trust

NOVA transforms AI-generated artefacts into controlled, traceable, verifiable and audit-ready engineering evidence, enabling AI adoption in safety-critical software development.

 **DEVELOPAIR**

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A new challenge, a clear approach

• BEFORE AI

Manual and slow

Producing artefacts such as requirements, tests and auditable documentation is highly time-consuming and prone to errors.



• AI ERA

Fast but uncontrolled

Generation is now fast and abundant. But in safety-critical environments, raw AI output is unreliable, unrepeatable, unpredictable and unscalable.



• NEW BOTTLENECK

Proving AI results are trustworthy

The real challenge is demonstrating that AI-generated artefacts satisfy the needs for traceability, deterministic checks, compliance evidence and certification readiness.

“NOVA is the layer that converts AI speed into demonstrable trust, making AI-assisted engineering auditable, traceable and certification-ready.”

OUR APPROACH

1

Propose

AI drafts requirements, tests and documentation.

2

Verify

Deterministic, formal checks catch ambiguity and conflicts.

3

Govern

Experts review through formal gates and approval states.

4

Evidence

Every action produces audit-ready evidence automatically.

Built for the regulated domains where embedded software cannot fail



Railway

EN 50128 / EN 50716



Automotive

ISO 26262



Aviation

DO-178C / DO-330



Space

ECSS-E-ST-40C / Q-ST-80C



Medical

IEC 62304



Software Tool for Safety Related Development

NOVA fulfils the requirements for support tools classified T2 under IEC 61508-3 and EN 50128. It is qualified for safety-related development per IEC 61508, EN 50128 and ISO 26262, and validated for use under IEC 62304.

IEC 61508

EN 50128

ISO 26262

IEC 62304



Direct LLM vs NOVA

CAPABILITY	DIRECT LLM	NOVA
Generates text, code or tests	Yes, but unstructured	Yes — controlled process
Safety process knowledge	Not by default	Configurable via standards
Req-test-code traceability	Not native	Core capability
Audit-ready evidence packs	Partial or absent	Structured, per release
Human-in-the-loop gates	Not enforced	Roles, gates & approvals
Change impact analysis	None	Intelligent regression
ALM / V&V integration	Limited / ad hoc	Native + custom adapters

A complete AI assurance platform for safety-critical engineering



Requirements Engineering & Automatic Verification

Convert complex natural language reqs into SMART specifications while automatically ensuring consistency, completeness and functional safety standard compliance.



Test Case & Script Generation

Exhaustive test cases & scripts generated automatically according to safety standard techniques. Bidirectional req to test traceability.



AI-Assisted Architecture

AI-assisted system & SW architecture definition, analysis and documentation, aligned with requirements and design standards.



End-to-End Traceability

Living traceability links from requirements to tests, code and evidence, with automatic impact analysis.



Human-in-the-Loop Governance

Formal roles, review gates, approval states and audit log; AI proposes, the expert decides.



Evidence Packs & Audit Readiness

Exportable evidence packs per release: traceability matrix, coverage reports, approval logs.



Proven in the field

Case 1 — HIL Validation SIL2 Assisted by AI

Pain: Scaling from basic integrity to SIL2 HIL validation causes unsustainable effort and delays.

- 1 Import requirements & domain documentation.
- 2 AI agents improve & structure requirements.
- 3 Human-in-the-loop; expert guides strategy.
- 4 NOVA generates traced SIL2 test cases.
- 5 Auto-generate scripts in client's language.
- 6 Execute on HIL environment + capture evidence.

Outcome: 50% V&V effort reduction at SIL2 criticality.

Case 2 — Legacy ASIL-B/ASIL-D Recertification

Pain: Updating complex certified legacy software for recertification is expensive and slow.

- 1 Ingest legacy code, requirements & docs.
- 2 AI agents generate/update requirements.
- 3 Expert human-in-the-loop review & validation.
- 4 NOVA generates tests (CXX framework).
- 5 Execute against existing code.
- 6 Measure coverage (incl. MCDC) & update evidence.

Outcome: lower recertification cost, MCDC coverage met, traceability restored.

Measurable impact

50%

Reduction in SW development time.

50%

Reduction in SW development costs.

30%

Reduction in time spent on certification.



Productivity

From requirements to executable tests in a fraction of the time. Automates repetitive V&V tasks so engineers focus on architecture and safety decisions.



Quality & Compliance

Detects ambiguities, gaps and conflicts early. Keeps traceability alive through change cycles. Reduces rework and non-conformity costs.



Audit Readiness

Evidence packs exportable per release. Every AI-assisted artefact has a history: prompt, model, approval, rationale.



Integration

Works with your existing toolchain: any Requirement Management Tool and Test Execution Tool of choice. Custom connectors on request.

GET STARTED WITH NOVA

Let's talk about your use case

Start with a focused pilot: 50–200 real requirements, an identified ALM tool and agreed before/after metrics. We deliver an evidence report, traceability matrix, test quality analysis and ROI estimate.

- ✓ Subset of 50–200 real requirements
- ✓ Variable criticality domain
- ✓ Existing or expected tests as baseline
- ✓ Identified ALM/V&V tool
- ✓ Agreed before/after metrics

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A LLM generates. **NOVA** integrates, governs, executes and evidences.