PROAPTUS

Accelerating Product Development

Agentic AI for Manufacturing Engineering Design

Made Smarter Technology Providers Directory | Supporting Document

February 2026 | www.proaptus.co.uk | chinedu@proaptus.co.uk

Supported by Innovate UK

The Challenge

Too Slow

Engineering design iterations that should take minutes consume days. Design exploration is limited to a handful of options.

Too Dependent

Critical engineering knowledge lives in the heads of one or two senior people. When they're unavailable, development stalls.

Too Expensive

Traditional simulation software costs £10k–50k/yr per seat. Implementation takes months. Most SMEs can't justify it.

The root cause: reliance on manual methods — spreadsheets, experience-based decisions, and hand-checked compliance.

The Product Development Bottleneck

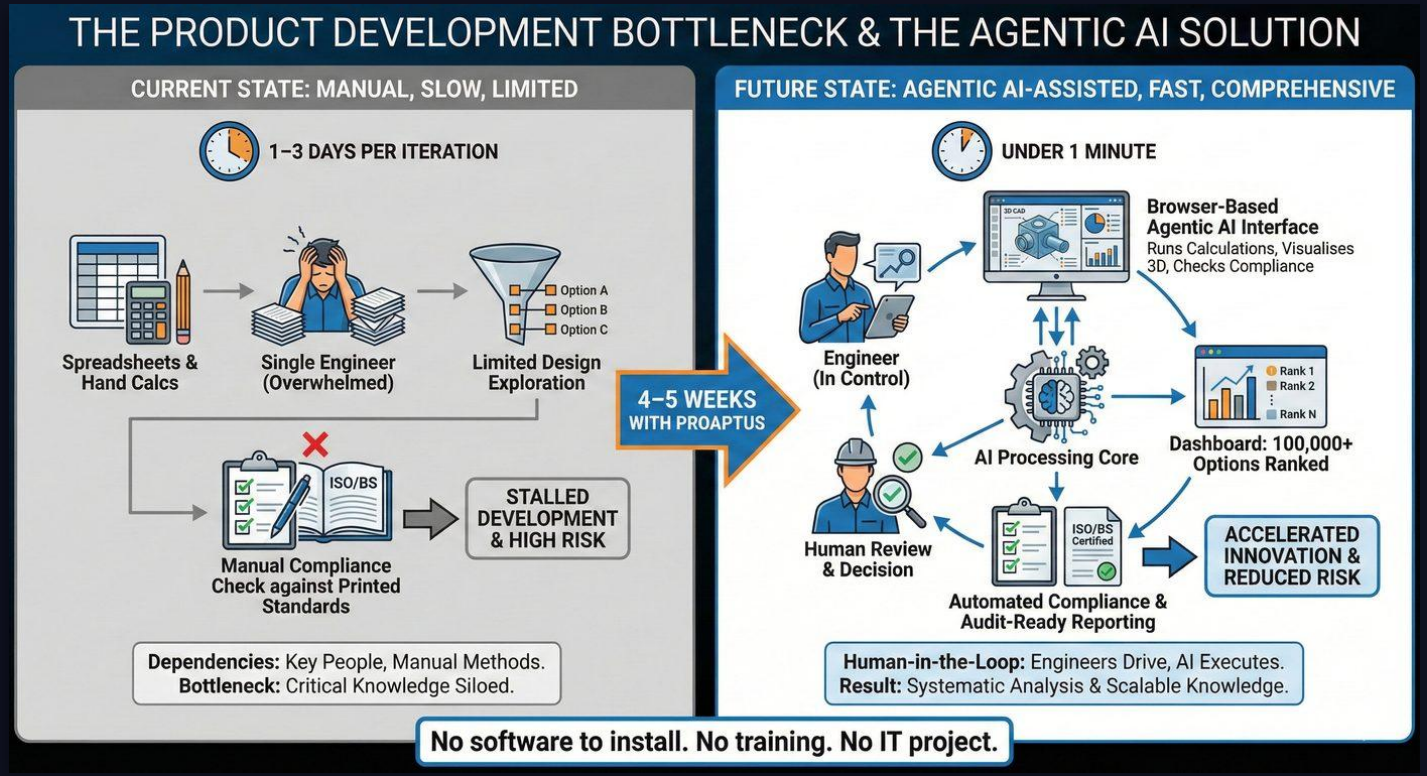


Figure 1: Current state vs. future state with Proaptus agentic AI

Our Solution

Bespoke Agentic AI for Your Engineering Processes

We take your specific engineering processes — the calculations your team runs, the standards you work to — and build a purpose-built AI system around them. Within weeks, your team goes from manual methods to a working AI-powered engineering design system.

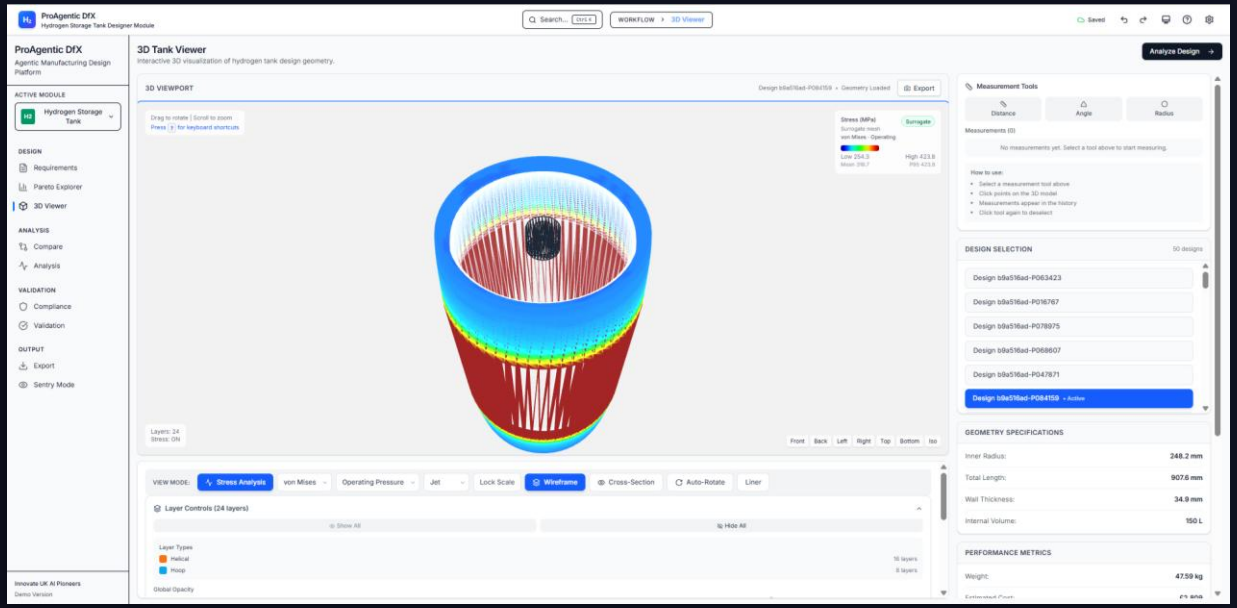


Figure 2: Live 3D viewer — Hydrogen Storage Tank with stress contour overlay

Compare Designs Side by Side

Performance radar charts and detailed metrics for up to three designs at once. Engineers see trade-offs at a glance and make informed decisions in minutes, not days.

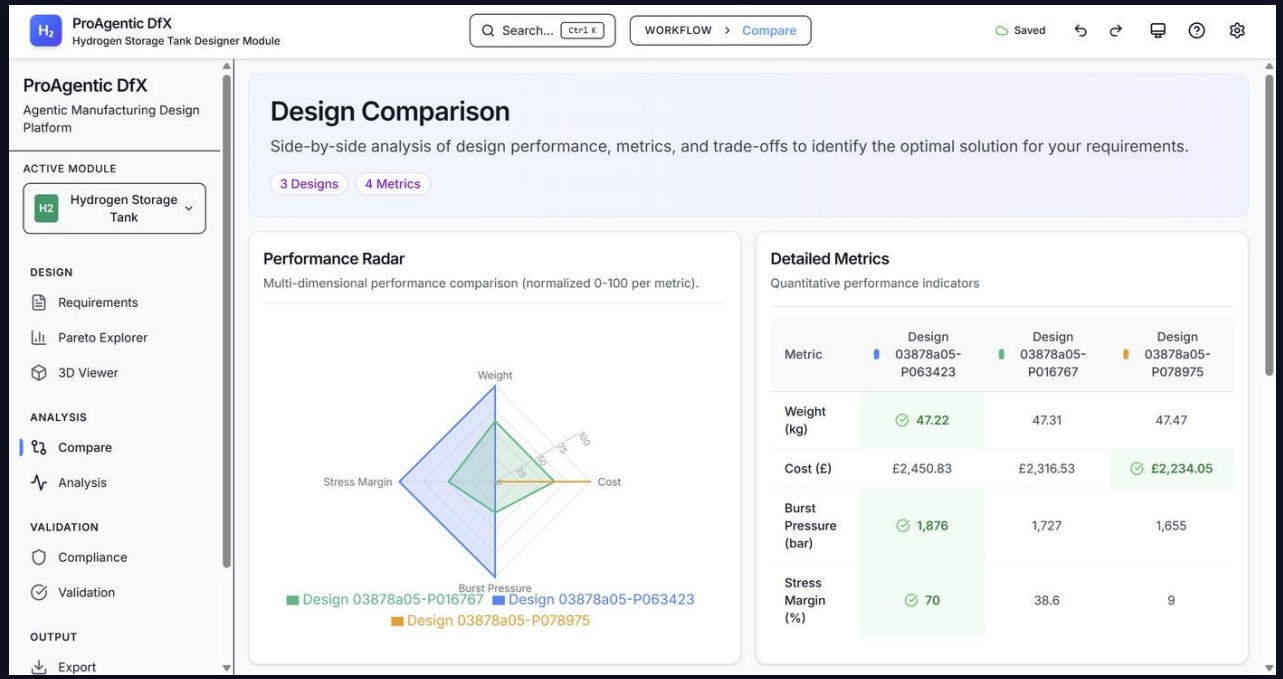


Figure 3: Design comparison — radar chart and metrics for three hydrogen tank candidates

Deep Engineering Analysis

100,000 Monte Carlo samples per design. Failure probability, burst pressure distributions, and confidence intervals — all computed automatically from design parameters.

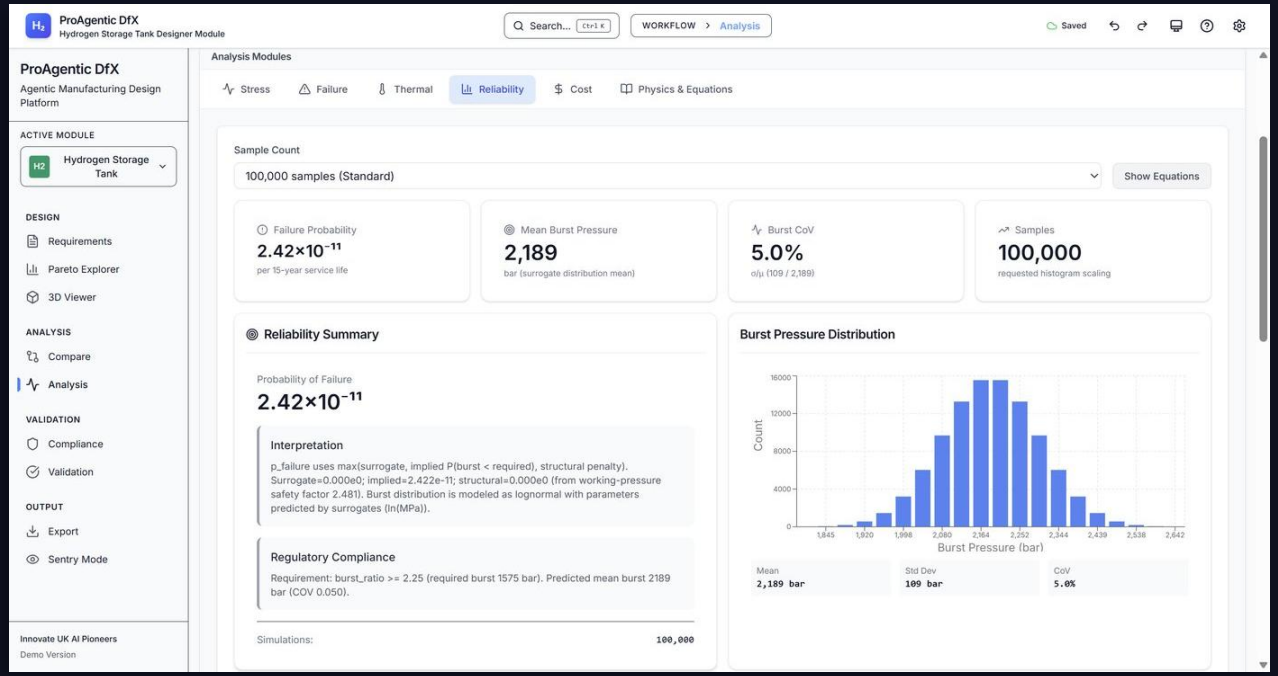
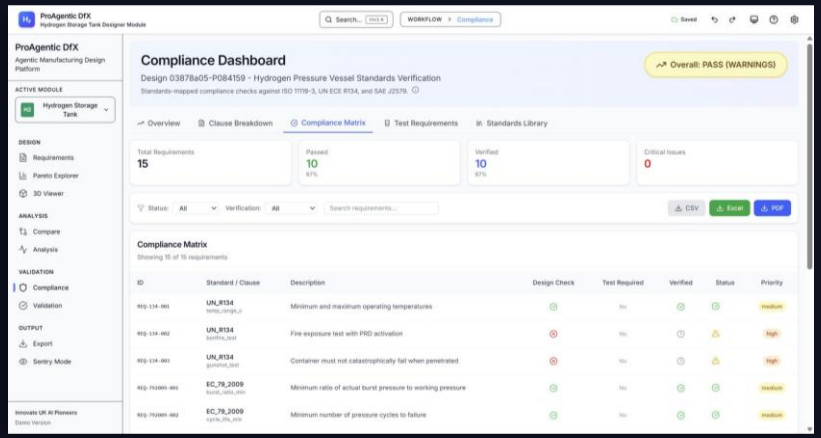
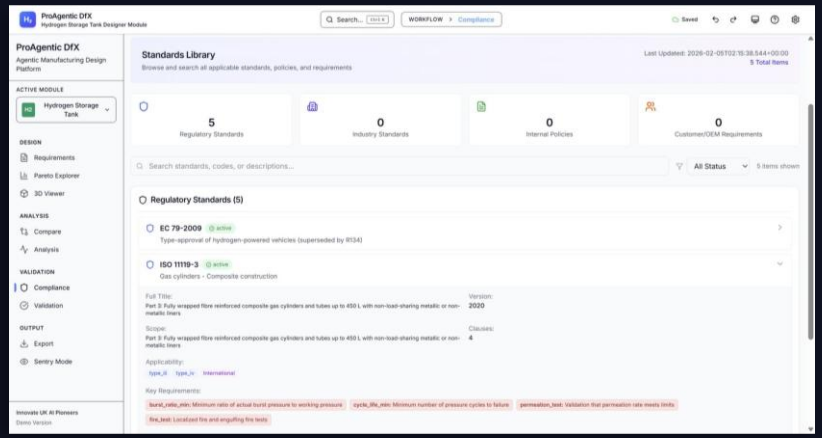


Figure 4: Reliability analysis — 100,000-sample burst pressure distribution with failure probability

Automatic Compliance & Standards



Compliance dashboard — 15 requirements checked



Standards library — searchable, linked, kept current

Every design is checked against ISO, UN ECE, SAE, BS, Eurocodes, or any other standard your industry requires. Full compliance matrix, audit-ready.

How It Works

Three Operating Modes — You Choose the Level of Automation

Human Mode

Engineers drive the workflow step by step. AI acts as a powerful calculation engine. Best for new processes or complex edge cases.

Hybrid Mode

AI handles routine analysis — calculations, compliance, ranking. Engineers review and approve. Best for day-to-day design work.

Autonomous Mode

AI agents run the complete workflow end-to-end, producing design packs and flagging exceptions. Best for high-volume batch processing.

The system learns and improves over time. Month 6 is measurably better than month 1 — without commissioning another project.

The Engagement

1	**Discovery**	We meet your engineers, map your processes, learn your methods and standards. You get a clear specification.
2	**Build**	Our agentic build system constructs your bespoke tool in 4–5 weeks. Regular walkthroughs throughout.
3	**Go Live**	Your team starts using the system on real problems. We validate results and tune with real-world data.
4	**Evolve**	The system continues to learn. Request changes in plain language. Optional ongoing support packages.

Weeks, not months | Scoped to your needs | You own it | Browser-based | Self-improving

Proven Results

<1 min

per design iteration
(was 1–3 days)

100,000+

design options evaluated
(was 3–5 per study)

87%

reduction in
engineering effort

None

specialist software
required

None

training required
(browser-based)

Auto

compliance checking
(audit-ready)

Live, deployed systems across three engineering domains: hydrogen storage vessels, thermal heat exchangers, and structural airframes.

Built on Years of Agentic AI Delivery

Autonomous Orchestration Tools | Inherent Safety & Quality Control | Multiple Grant Competition Wins

Sentry AI
Railway Infrastructure Monitoring

AI agents analyse acoustic and vibration data to detect safety threats in real time.

DocIntel
Document Intelligence

AI agents extract obligations, compliance terms, and risk from legal contracts.

ProAgentic
Multi-Agent Project Management

11 specialised AI agents coordinate to plan, schedule, and manage complex projects 3× faster.

Pricing Systems
Custom AI Pricing/Budgeting

Automated CAPEX/OPEX analysis and resource allocation with scenario planning.

Every system follows the same pattern: take specialist processes that depend on expert knowledge, and build agentic AI that can run them intelligently.

PROAPTUS

Get in touch to discuss your engineering challenge

chinedu@proaptus.co.uk

www.proaptus.co.uk

Supported by Innovate UK