Xcelenz - Engineering Intelligent Systems

Engineering the Future. Delivering with Precision.

Xcelenz is an engineering and technology company delivering **AI-powered Digital Twin solutions** that transform complex systems into **decision-intelligent, predictive, and simulation-ready** platforms. Our work sits at the intersection of **engineering excellence, EPC project execution,** and **strategic consulting**, spanning **industrial, clinical, and logistics** domains.

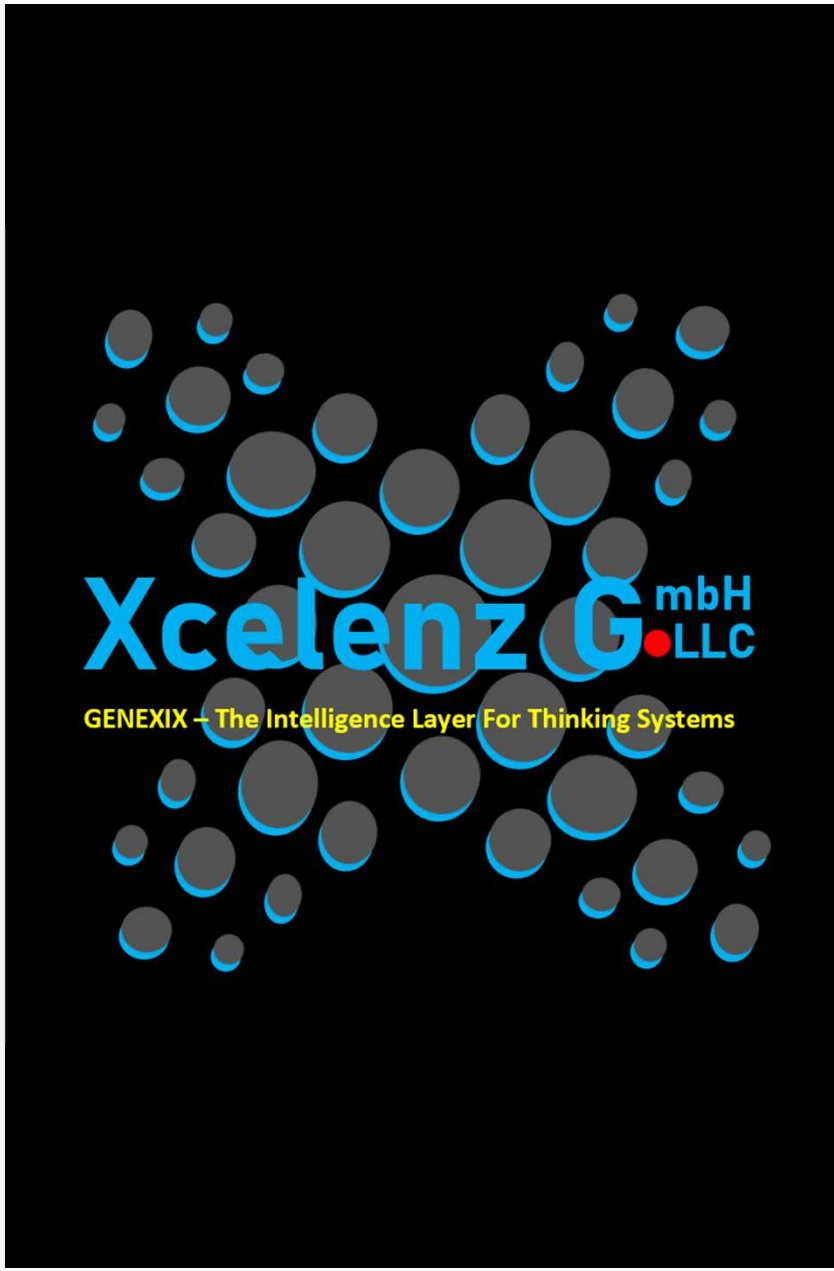
At the core of our portfolio is **GENEXIX™** — a **premium, engineering-grade Digital Twin intelligence framework** designed for organizations that require **explainable AI, system-level insight, and actionable intelligence** beyond visualization.

Xcelenz GmbH Germany

Mannheimer Str. 27, 76131
Karlsruhe, Amt. Stuttgart
www.xcelenz.de
info@xcelenz.de

Xcelenz Global LLC USA

30 N Gould St Ste N
Sheridan, WY82801
www.xcelenx-gl.com
info@xcelenz-gl.com



Our Leadership Team

Dr. Amir A. Hashmi

CEO & Founder

Amir is a senior leader with 15+ years in power generation, renewable energy, and digital transformation.He has led multimillion-dollar operations at INNIO Jenbacher and GE Power Service across EMEA & APAC. His expertise includes P&L ownership, EPC execution, and technology integration for global markets.He holds a Ph.D. from KIT, a Master's from RWTH Aachen, and is completing an MBA.

Johannes Häfele

Chief Financial & Compliance Expert

Johannes is a senior finance and controlling expert with over 30 years of experience in corporate finance, restructuring, and strategic optimization. He has served as CFO at major organizations including Otto Group and Staples, leading teams of 100+ employees and driving large-scale turnaround and financial system improvements.

Dr. Rainer Koch

Chief Technical Expert

Rainer is a senior combustion and multiphase-flow expert with 30+ years of experience in turbomachinery, gas turbines, and advanced fluid-thermal systems.
He brings deep technical insight into engine behavior, thermal systems, and fluid-mechanical optimization across the energy and industrial sectors.

The GENEXIX™ Suite

GENEXIX-iDT

Industrial digital twin for performance optimization, predictive maintenance, and real-time monitoring of energy and manufacturing assets.

GENEXIX-cDT

Clinical digital twin for healthcare systems, supporting diagnostics, workflow optimization, and AI-assisted patient management.

GENEXIX-sDT

Logistics and supply-chain digital twin for real-time visibility, operational optimization, and predictive bottleneck management.

General Engineering Neural Enhanced X(S)mart Industrial X(S)ystems

GENEXIX-iDT

Industrial digital twin for performance optimization, predictive maintenance, and real-time monitoring of energy and manufacturing assets.

Coverage & Solutions

Operational Co-Pilot

- Machine Level
- Context Aware
- Operational Excellence
- Total Machine Health
- Predictive Maintenance
- Compliance & Audit
- Financial Intelligence
- Conversational AI

OEM/R&D

- Virtual Testing
- Fleet Intelligence
- Warranty Cost Reduction

Factory Level

- Factory-Level Coordination
- Cascading Impact Analysis
- ESG Integration

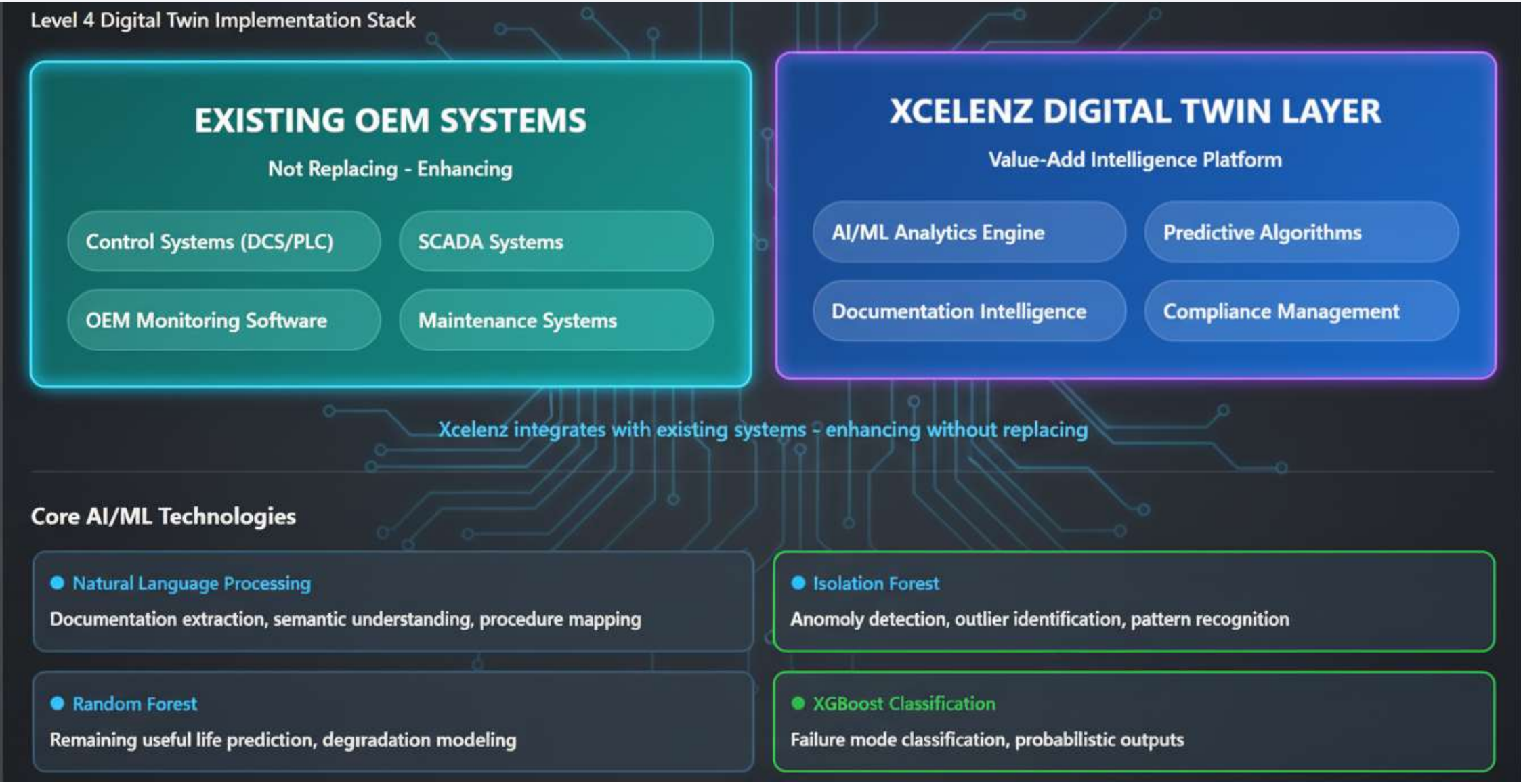
GENEXIX™ Framework – Core Capabilities

The **GENEXIX™ Digital Twin framework** goes beyond conventional dashboards or monitoring tools by combining:

- **Physics- & engineering-grounded system models**
- **AI intelligence layers** for prediction, anomaly detection, and optimization
- **Semantic structures** that connect assets, processes, data, and documentation
- **Scenario simulation & "what-if" analysis** for proactive decision-making

GENEXIX™ creates a living digital representation of real-world systems, enabling continuous learning, explainable intelligence, and executive-grade insight across the full system lifecycle – from modeling and monitoring to optimization.

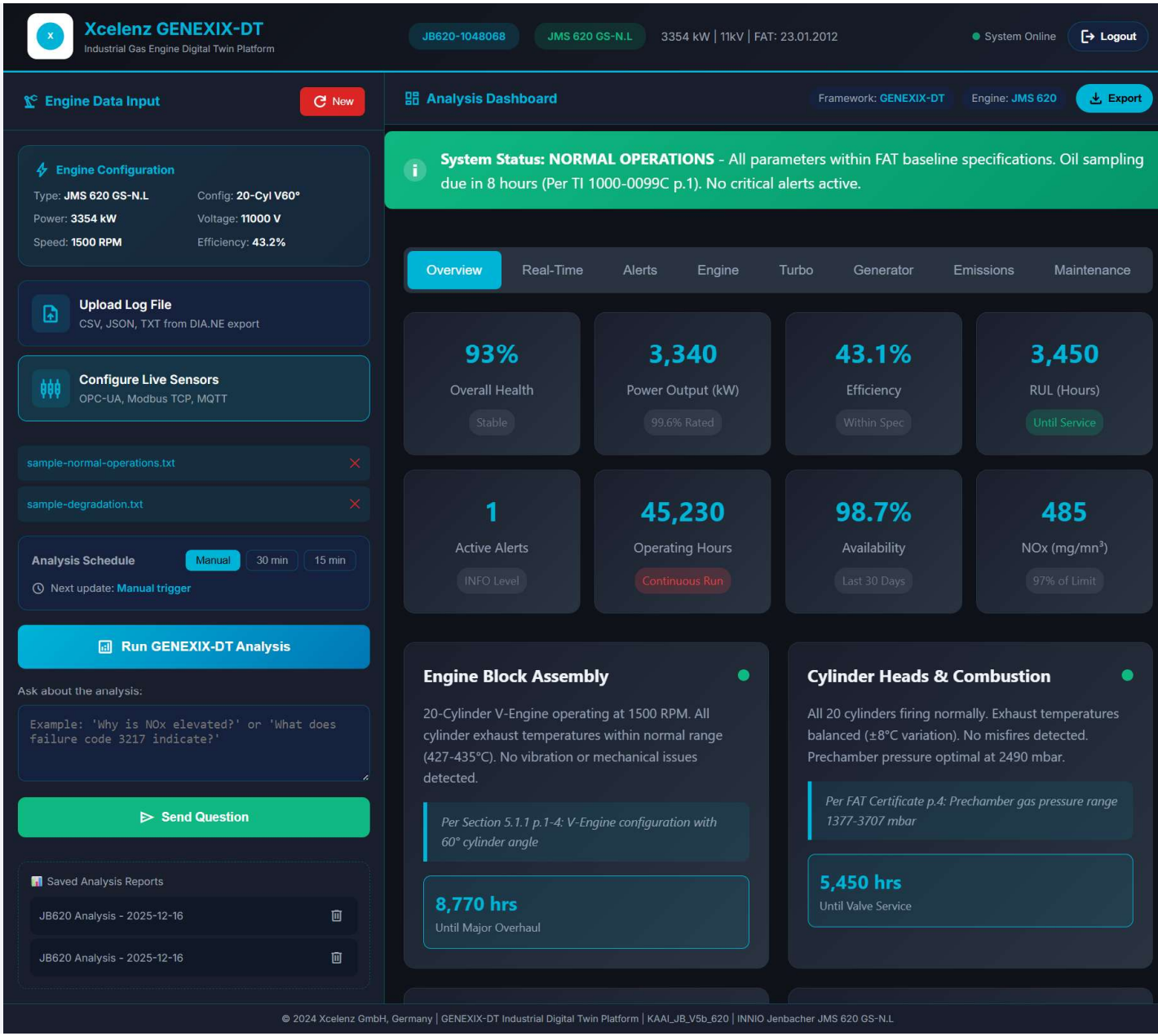
GENEXIX – How it Works?



GENEXIX – How are We Different?

GENEXIX-iDT User Interface

1. Real-time monitoring & analysis via connection to machine via existing sensors Or
2. Log file upload option Or
3. Run analysis anytime
4. Context (history) is preserved
5. AI-Chat function to understand analysis or ask any question about the asset



GENEXIX-iDT: Application Case|3MW Industrial Gas Engine

AI-powered Digital twin converting engine sensor data into explainable, OEM-aligned operational decisions.

Architecture
- 3 MW gas engine
- Engine | Turbo | Generator | Emissions | Maintenance
- FAT & OEM benchmarked

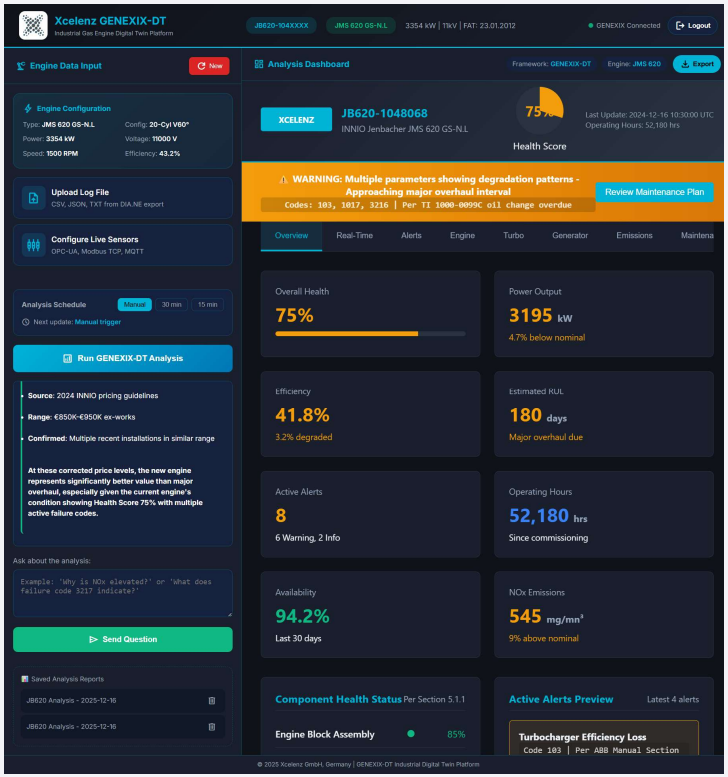
Unified Health & Performance
- Health, efficiency, emissions & RUL
- Benchmarked vs FAT & OEM references

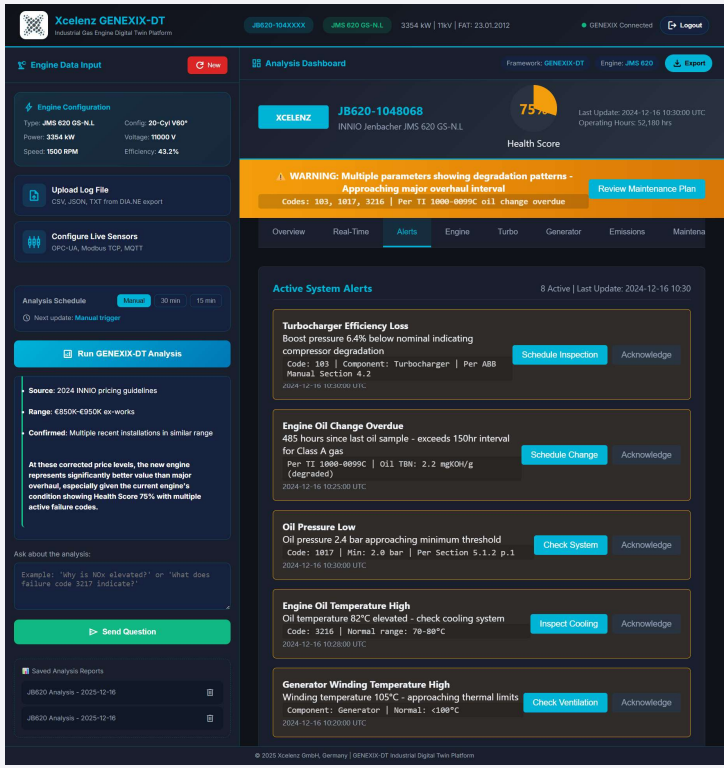
Real-Time & Subsystem Analytics
- Live power, temperatures & pressures
- Combustion, lubrication, cooling & oil condition
- Turbo efficiency & vibration
- Generator electrical & thermal health

Explainable Alerts & AI Diagnostics
- Degradation detection with OEM traceability
- Root-cause analysis with confidence scoring
- Risk-based maintenance prioritization

Platform Highlights
- Flexible sensor integration
- Configurable analysis intervals
- Built-in AI chat & analysis history

Value
- Predictive maintenance & downtime reduction
- Performance & emissions optimization
- Explainable, risk-aware decisions





GENEXIX-DT ≠ SCADA

SCADA shows *signals* → GENEXIX-DT delivers *engineering intelligence*

GENEXIX-iDT: Application Case|400 CCPP

AI-powered digital twin converting plant data into explainable, OEM-compliant operational decisions

Architecture
- GT | HRSG | ST | BOP
- Physics-based + OEM logic + real-time analytics

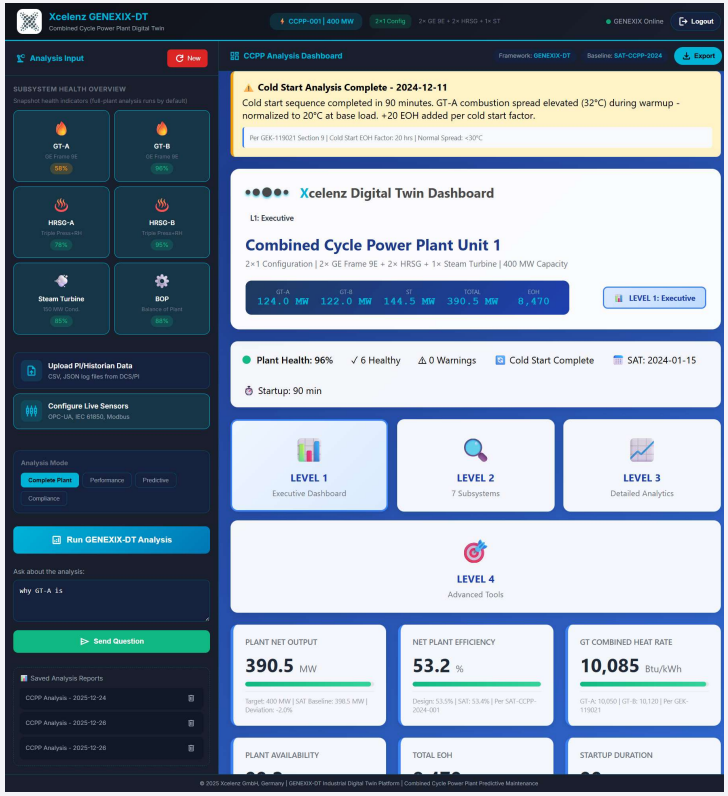
Plant-Wide Health & Compliance
- Unified executive view
- OEM limits, ISO vibration zones, emissions
- Healthy / Warning / Critical status

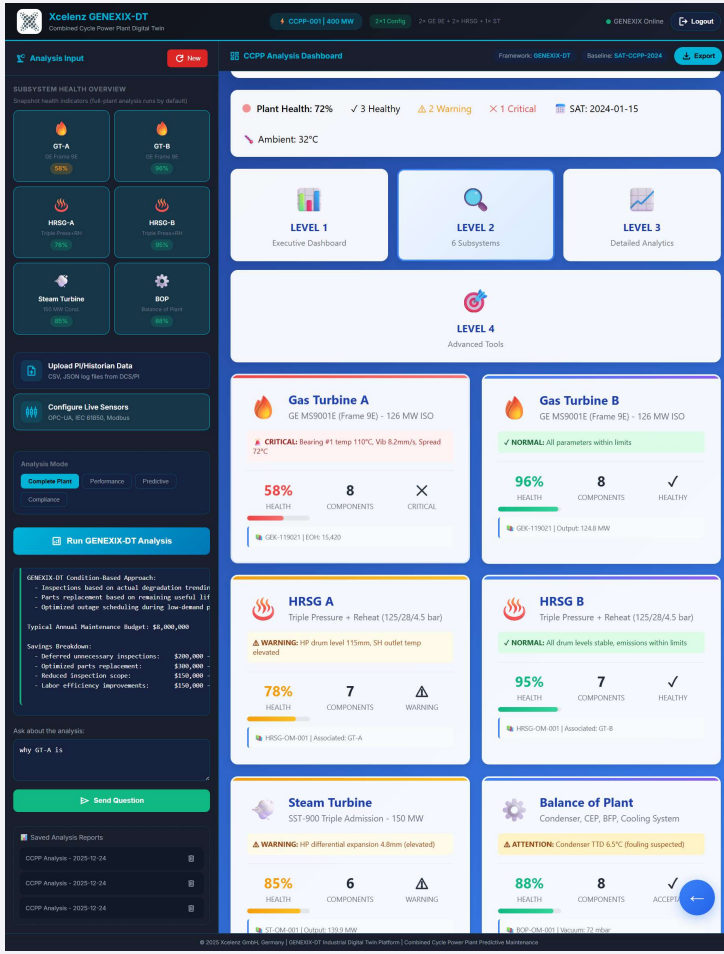
GT Fouling & Degradation Intelligence
- Surge margin & CDP deviation
- MW & heat-rate loss quantified
- Actionable online wash timing

“What Do I Do Next?” Guidance
- Prioritized actions (24–48h / short-term / outage)
- Load-vs-risk trade-offs
- Explainable recommendations

Value
- Not alarms — **engineering decisions**
- Reduced degradation & risk
- Improved availability & efficiency

GENEXIX-DT ≠ SCADA
SCADA shows *what* → GENEXIX-DT explains *why* & *what to do next*





GENEXIX-iDT: Application Case|40 MW Solar Park

AI-powered digital twin delivering plant-wide intelligence from KPIs to component-level diagnostics

Architecture
- 40 MW PV | Central Inverters | MV Transformers | BESS | 33/132 kV Substation | SCADA
- Full lifecycle coverage: FAT → operation → degradation → compliance

L1 – Executive KPIs
- Plant health, availability & generation
- Performance Ratio (PR)
- BESS SOC
- Grid export & power quality
- Benchmarked to FAT, OEM & contracts

L2 – System Intelligence
- PV, inverters, transformers, BESS & substation modeled as **living subsystems**
- Health, risk, tags & interdependencies captured

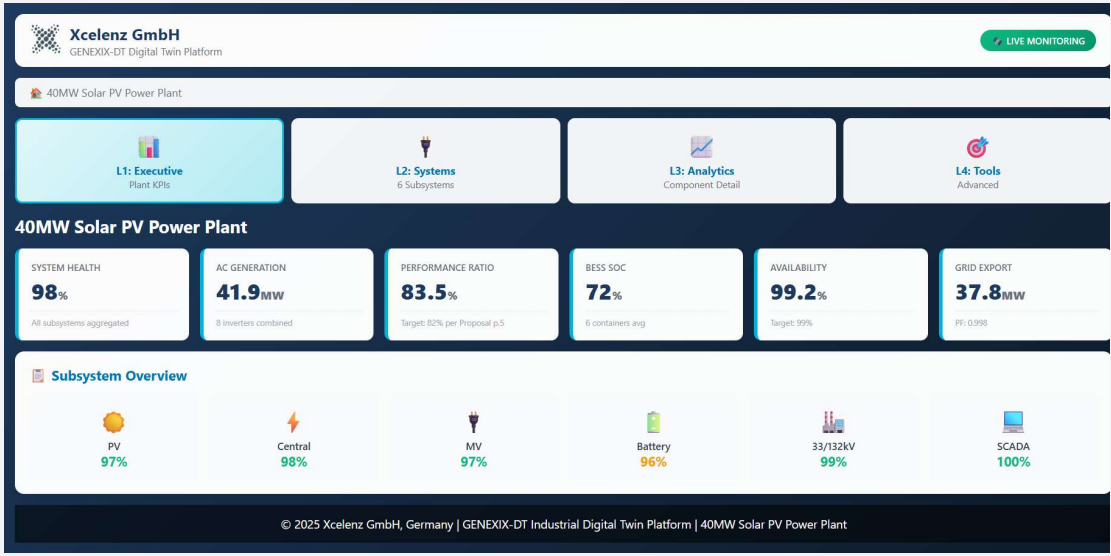
L3 – Component Analytics
- Real-time sensors & golden references
- Early-warning & explainable deviations
- IEC / IEEE / OEM compliance logic

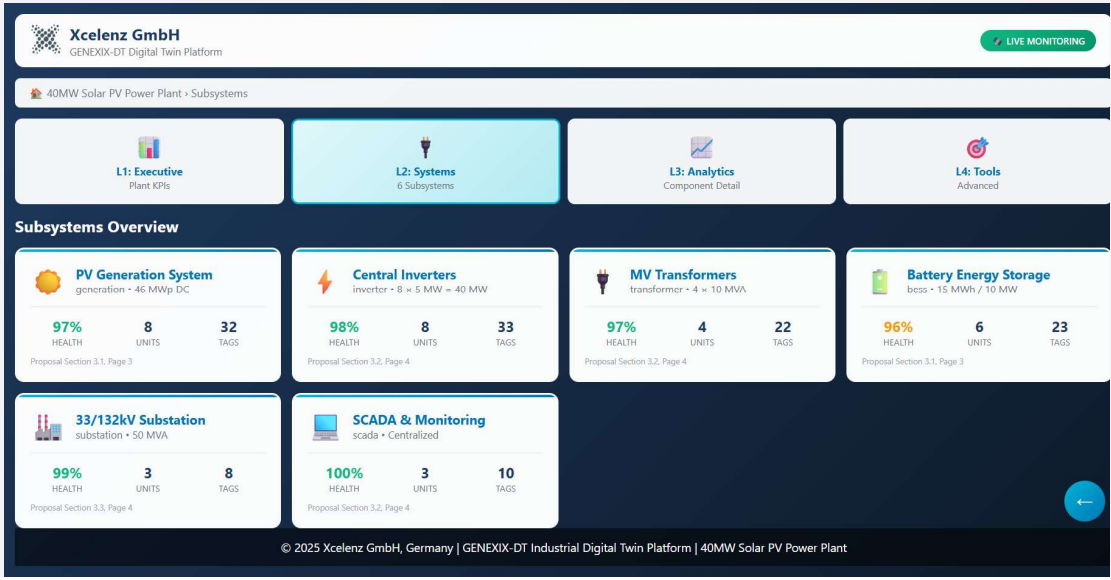
Examples Shown
- Inverters: efficiency & thermal warnings
- Transformers: oil, winding temp & DGA
- PV blocks: underperformance, V/I & module temp
- BESS: SOC, SOH, cell temp, imbalance & cycles
- Substation: export power, PF, frequency, THD & grid code

Outcome
- Not monitoring — **context-aware operational intelligence**
- Reduced losses, early fault detection, better O&M decisions

GENEXIX-DT ≠ SCADA

SCADA shows *what* → GENEXIX-DT explains *why* & *what to do next*





GENEXIX-iDT: Application Case| 9.2 MW Wind Park

AI-powered digital twin for wind farms, unifying fleet KPIs, OEM-aligned compliance, and predictive maintenance.

Architecture

- Wind Turbine Fleet | Transformers | SCADA | Met Station | Grid Interface
- IEC / VDI / ISO-aligned analytics with AI-driven diagnostics

L1 – Executive Fleet View

- Total power output & availability
- Overall system health & active alerts
- Real-time KPIs grounded in IEC, VDI & OEM documentation

L2 – Subsystem & Fleet Transparency

- Turbine-level health scores
- Component monitoring across the fleet
- Transformer, SCADA, met data & grid status
- Early warnings (e.g. gearbox temperature anomalies)

L3 – Turbine Deep Dive & Predictive Maintenance

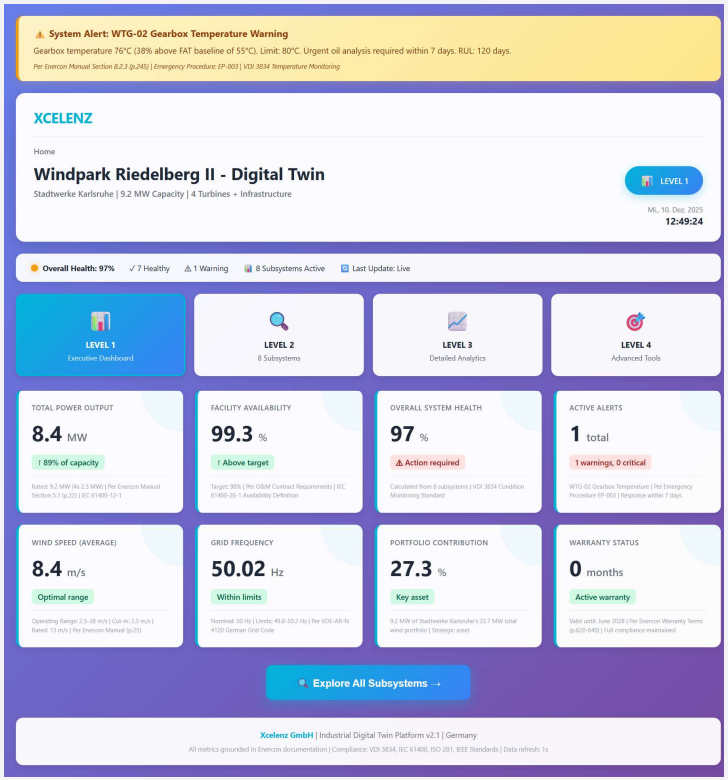
- Real-time vs FAT baseline performance
- IEC 61400-12-1 power curve analysis
- VDI 3834 vibration monitoring
- Thermal risk & threshold logic
- ISO 281 Remaining Useful Life (RUL) models
- AI-driven root-cause diagnostics & long-term trends

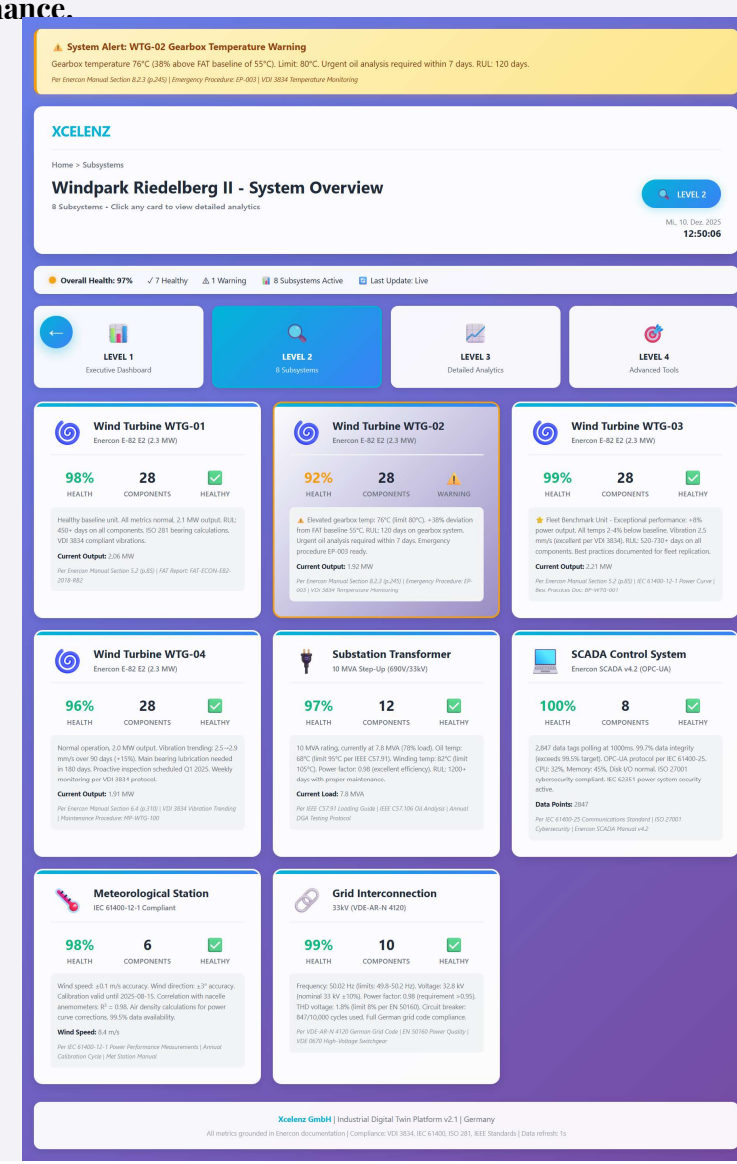
Value

- Fleet-wide transparency with turbine-level depth
- Early fault detection & predictive maintenance
- Faster, explainable operational decisions

GENEXIX-DT ≠ SCADA

SCADA shows *data* → GENEXIX-DT delivers *engineering intelligence*





GENEXIX-iDT: Application Case| AI-Ready Data Centers

AI-powered digital twin connecting power, cooling, IT workloads, and cost into one system-level view for AI-intensive data centers.

Architecture
- Electrical & power systems | Cooling plant | Data halls | AI/GPU workloads
- Engineering + economics + risk in one model

Executive Reality (Real-Time)
- PUE, IT load & operating cost (€/h, €/day)
- Budget impact & efficiency at a glance

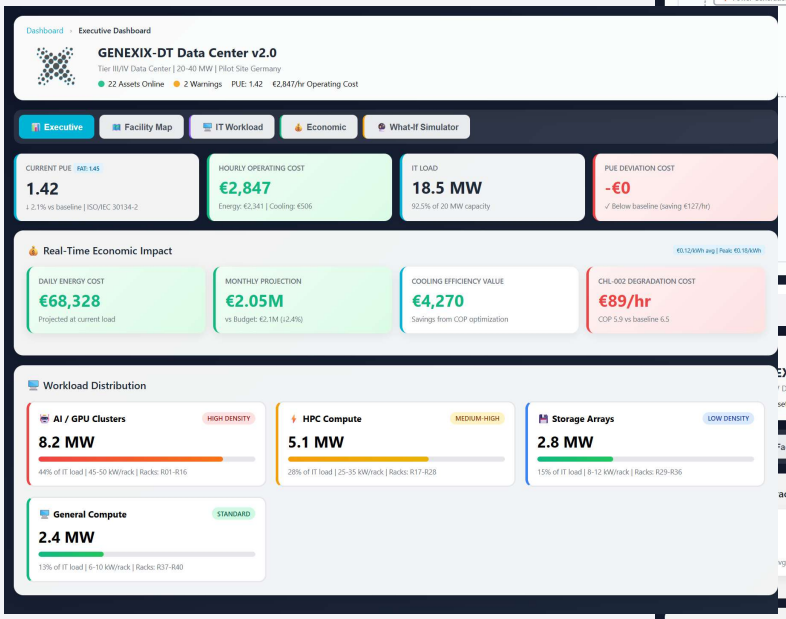
Facility-Wide System Intelligence
- Power, cooling & data halls modeled together
- AI/GPU clusters treated separately from HPC & storage
- Heat density, cooling demand & risk margins explicit

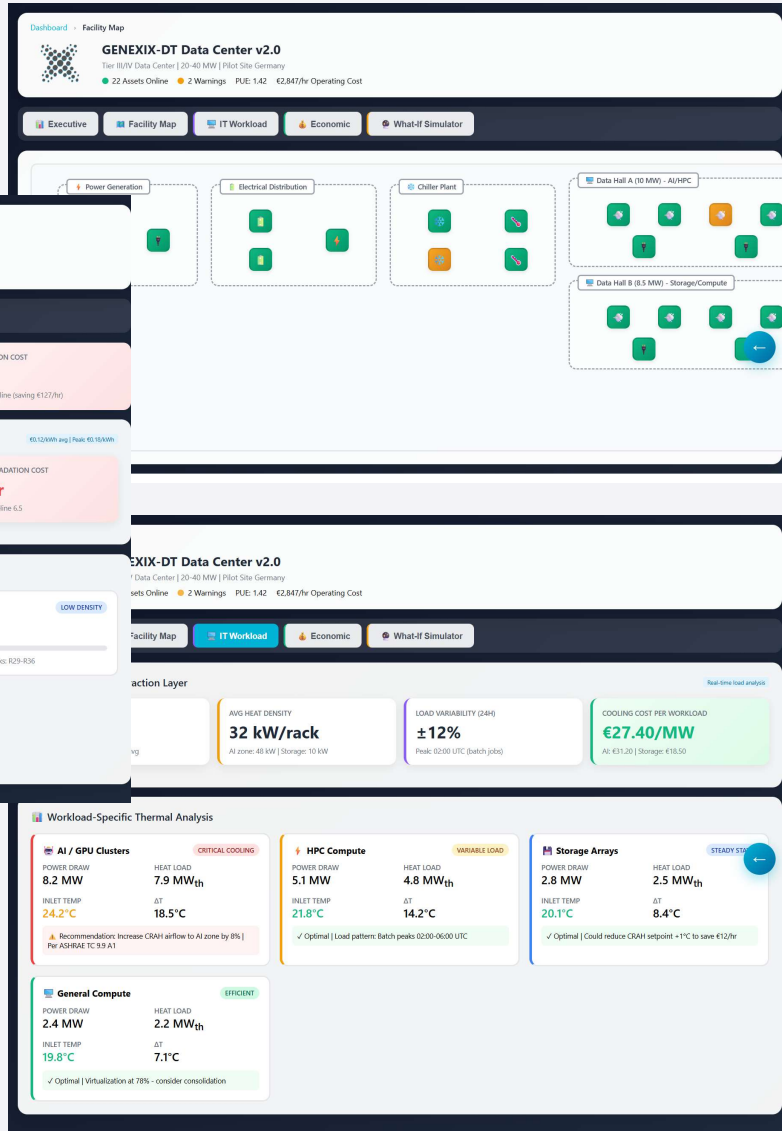
What-If & Decision Scenarios
- Grid loss, chiller trips, AI load growth, setpoint changes
- Time-to-thermal limit, outage risk & financial impact quantified

Economic & Operational Value
- Lower energy cost via continuous optimization
- Reduced O&M through condition-based maintenance
- Avoided overcooling & hidden inefficiencies
- Delayed CAPEX by unlocking real capacity headroom
- Reduced outage & SLA risk
- ESG- & financing-ready transparency

Why GENEXIX-DT ≠ Monitoring Platforms
- System-level intelligence, not isolated analytics
- Engineering reality directly linked to financial outcomes
- Operator, management & investor views — aligned

Result
- Energy-efficient, Thermally stable under AI loads
- Predictable, scalable & finance-ready





GENEXIX-iDT: Extra-Ordinary Features

Indigenous knowledge & competencies can be embedded: Local operating know-how, site practices, and expert rules can be integrated alongside OEM data.

Unified interface to all engineering & operational documentation: Seamless linkage to manuals, drawings, datasheets, reports, and historical records – all searchable and context-aware.

Golden-reference–driven intelligence: Analysis continuously benchmarked against FAT, SAT, design intent, and best-known operating states – not static thresholds.

Condition-specific & context-aware analysis: System behavior is evaluated based on actual operating conditions, environment, load profile, and asset configuration.

Conversational AI for engineering & management: Users can interact naturally with the system to

- Ask technical or operational questions
- Generate management de-briefs and summaries
- Prepare execution notes and feasibility insights

Explainable AI – not black-box analytics: Every insight, deviation, or recommendation is traceable to physical parameters, engineering logic, and data sources.

Modular, scalable, and OEM-agnostic by design: From single equipment to entire facilities, across vendors and industries, without vendor lock-in.

Let's Build Your Ideal Solution Together

Contact Germany

Phone: +49 162 309 3820

Email: info@xcelenz.de

Website: www.xcelenz.de

Mannheimer Str. 27, 76131 Karlsruhe,

Amt. Stuttgart, Germany

Contact USA

Phone: +1 (307) 381 5145

Email: info@xcelenz-gl.com

Website: www.xcelenz-gl.com

30 N Gould St Ste N, Sheridan,

WY82801, United States